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CALIFORNIA REGIONAL WATER

JUL 11 1988

QUALITY CONTROL BOARD

California Regional Water
Quality Control Board
San Francisco Bay Region
1111 Jackson Street
Room 6040
Oakland, CA 94607
Order No. 88-106
Waste Discharge Requirements

FOR
THE WESTSIDE TREATMENT FACILITY AND SOUTHWEST OCEAN OUTFALL
OF THE
CITY AND COUNTY OF SAN FRANCISCO

The California Regional Water Quality Control Board, San Francisco Bay Region, (the Regional Board), and the Regional Administrator, Environmental Protection Agency Region 9, (EPA), find that:

1. The City and County of San Francisco (hereinafter Discharger) is the owner and operator of a wastewater collection, treatment, and disposal system which serves the Richmond-Sunset Sewerage Zone of San Francisco. The wastewater treatment facility provides primary treatment to wastewater prior to discharge to the Pacific Ocean through the Southwest Ocean Outfall.

2. The Discharger applied to the EPA for a modification of secondary treatment effluent limitations in September 1979 as allowed by Section 301(h) of the Clean Water Act. Tetra Tech Inc., contractor to EPA, summarized its evaluation of the information and data submitted by the applicant in a Technical Evaluation Report (TER) dated October 1980. In response to a reduction in construction grant funding, EPA and the California State Water Resources Control Board (SWRCB) recommended, in their February 11, 1982 Oversight Review, that the discharger investigate some interim projects designed to be compatible with future expansions. These included construction of the Southwest Water Pollution Control Plant to replace the present deteriorated Richmond-Sunset Plant, a pump station to lift flow from the Westside Transport to the treatment plant, a gravity connection to convey effluent during wet weather from the Transport directly to the ocean outfall, headworks configured to accomodate interim operations, and final operational components as proposed. The Discharger developed a staged construction sequence and on October 27, 1982, submitted to the EPA a "Supplement to the Application for a Modification of Secondary Treatment Requirements Section 301(h), Public Law 95-217". Corrections to this document were submitted to the EPA on November 24, 1982. Tetra Tech, Inc. prepared a TER and subsequent revisions in 1983 for the supplemental submittal. In January 1985, EPA requested additional information from the Discharger who responded to this request on April 2, 1985, in a document entitled "Additional Information for the Application for Modification of Secondary Treatment Requirements Section 301(h), Public Law 95-217". Tetra Tech, Inc. reviewed this information in a report dated July 1985 and in an addendum dated September 1986. The EPA reviewed the application, the TER, and the additional information it had requested for clarification before drafting the tentative decision. The

tentative decision was issued on September 30, 1986, granting the Discharger's request subject to construction and operation of plant improvements described in Finding No. 12 prior to expiration of the 301(h) permit, effluent disinfection described in Finding No. 13, and configuration and operation of the Southwest Ocean Outfall as described in Finding No. 14. The recently completed Westside Pump Station and the Southwest Water Pollution Control Plant are now permanent projects.

3. The tentative decision by the EPA evaluated an existing and proposed discharge of effluent as characterized below:

	Flow (MGD)	Flow (ML[a]/day)	Suspended Solids (mg/L)	Suspended Solids (kg/day)	BOD_5 (mg/L)	BOD_5 (kg/day)[b]
Existing						
Annual average (all weather)	23.5	89	68	6,050	144	12,820
Maximum dry-weather month	25.6	97	77	7,470	178	17,270
Maximum dry-weather day	31.4	119	130	15,470	259	30,820
Maximum wet-weather month	31.2	118	84[d]	9,910	172	20,300
Maximum wet-weather day	52.0[c]	197[c]	220[d]	43,340	202	39,790
Proposed						
Annual average (all weather)	24.0	91	ID[e]	ID	ID	ID
Maximum dry-weather month	25.6	97	60	5,820	178	17,270
Maximum dry-weather day	31.4	119	ID	ID	ID	ID
Maximum wet-weather month	31.2	118	ID	ID	ID	ID
Maximum wet-weather day	52.0[c]	197[c]	ID	ID	ID	ID

a Million liters

b Rounded to the nearest 10 kilograms per day. The mass emission rates are based on the effluent flows and concentrations indicated in this table. The applicant states that the flows and concentrations indicated are not coincident, however, and reports lower maximum flow mass emission rates for the existing facility [with the exception that for the maximum wet-weather month, a slightly higher suspended solids mass emission rate (10,400 kg/day) is reported].

c With all Richmond-Sunset WPCP facilities operational, the Discharger contends that the rated wet-weather capacity for process reliability is 170 ML/day (44.9 MGD).

d Jones, D.A., 26 February 1986, personal communication[1].

e ID - denotes insufficient data for reliable prediction.

4. On July 18, 1984, the Regional Board reissued Waste Discharge Requirements in Order No. 84-45, which also served as NPDES Permit No. CA 0037681 which expires July 18, 1989. This permit was for effluent discharge to the Pacific Ocean through the Mile Rock Outfall and the Southwest Ocean Outfall.

5. Upon completion of the Southwest Ocean Outfall, as described in Finding No. 15, the Discharger initiated discharge of wastewater from the Richmond-Sunset WPCP through this outfall into the Pacific Ocean at the location described in Finding No. 15.

6. The discharge location described in Finding No. 15 is more than three miles from shore and, thus, is in federal waters outside of California State jurisdiction (although the discharge may affect waters within State jurisdiction). Therefore, Order No. 84-45 can no longer serve as a valid NPDES permit. Based on the above, the EPA issued a 'Findings of Violation and Order For Compliance' to the City and County of San Francisco on December 18, 1986. This permit supersedes Order No. 84-45.

7. The discharge, as described in the City and County of San Francisco 301(h) application and supplemental documents, would comply with the California State Water Quality Standard for dissolved oxygen (DO) and pH but it may occasionally not comply with the California Water Quality Standard for light transmittance unless proposed treatment plant improvements, as described in Finding No. 12, are in operation before the end of the five year 301(h) permit term. The discharge will not result in any additional treatment requirements on any other point or nonpoint source. This determination was made pursuant to 40 CFR §125.60(b)(2) and §125.63(b) of the 301(h) regulations dated November 26, 1982.

8. The discharge will not adversely impact public water supplies and will not interfere with the protection and propagation of a balanced, indigenous population of fish, shellfish, and wildlife, and will allow for recreational activities.

9. The Discharger submitted an industrial pretreatment program approvable under 40 CFR §403. This program was approved by EPA on January 28, 1983, and has been implemented. A nonindustrial source (toxic pollutant) control program was also EPA-approved and is contained in this permit.

10. The Westside Treatment Facility is located on property owned by the Discharger.

11. The existing treatment system consists of influent pumping, screening, grit removal, and primary sedimentation prior to discharge. Sludge is subject to anaerobic digestion and dewatering prior to disposal at a sanitary landfill. The plant provides primary treatment at the following design capacities:

Average Dry-weather Flow =	22 MGD
Peak Wet-weather Flow =	45 MGD

During wet weather, most of the combined sanitary and storm wastewater flows in excess of the Richmond-Sunset plant capacity are collected in the Westside Transport and partially treated (some solids settling and most floatables removed) prior to discharge. The Westside Transport normally provides the following partial treatment capacity:

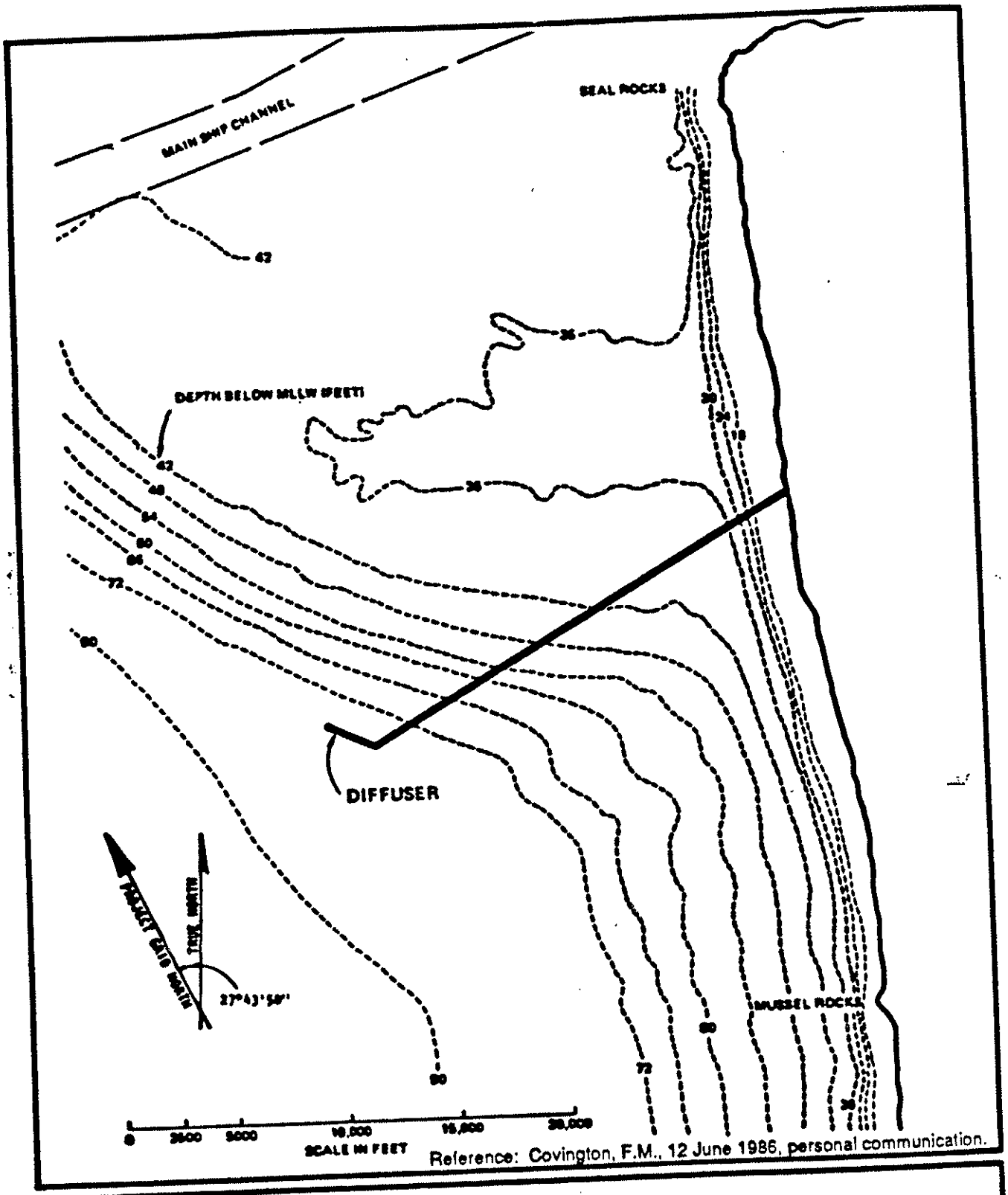
Peak Wet-weather Flow = 100 MGD

12. Planned new treatment plant construction will provide for improved plant performance that will meet the effluent limitations required in this permit. These improvements may include construction and operation a new 50 MGD primary treatment facility and a new 10-12 MGD secondary treatment unit. However, the exact size, type and location of the upgraded treatment facilities will be determined upon completion of the facilities planning process. The effluent from the two units will be blended prior to discharge through the Southwest Ocean Outfall.

13. All California Ocean Plan discharge limits are contained in this permit and are effective upon implementation.

14. Disinfection of the proposed effluent may be necessary to ensure compliance with the California Ocean Plan Bacteriological Standards. This requirement is contingent upon the results of the Bacteriological Study currently being conducted as a requirement of the "Findings of Violation and Order for Compliance" described in Finding No. 6.

15. The treated wastewater is discharged to the Pacific Ocean through the Southwest Ocean Outfall located on the southwest side of the City and County of San Francisco (see Figure 1). The total length is 7310 m (4.54 miles) but because of the diffuser orientation it extends 6983 m (4.34 miles) offshore. The final 933 m (3060 ft) of the outfall consists of a multiport diffuser which discharges at a mean low water depth of 23 m (75.5 ft). The outfall terminates in the Pacific Ocean at a location 37° 42' 18" North latitude and 122° 34' 39" West longitude. The outfall has a total of 85 diffuser risers with 8 ports each for a design maximum flow rate and discharge capacity of 450 MGD at a design tide of +7 MLLW datum. Higher gravity flows can be conveyed through the Southwest Ocean Outfall at lower tide stages and, if operated as a force main (with pumps), the outfall could carry up to 490 MGD.



Reference: Covington, F.M., 12 June 1986, personal communication.

Figure 1. Location of the new Southwest Ocean Outfall and ocean bottom bathymetry.

Twenty-one risers located in the last 439 m (1440 ft) of the outfall will be used for the present maximum discharge rate of 150 MGD. Minimum initial dilution of the discharge is calculated to be 58:1.

16. The discharge location described in Finding No. 15 is outside State waters, but the discharge may affect waters within the State's jurisdiction.

17. The EPA and the Regional Board classify this discharge as a major discharge.

18. The State Water Resources Control Board (hereinafter State Board) revised the Water Quality Control Plan - Ocean Waters of California (Ocean Plan) on November 17, 1983. This Plan contains water quality objectives for territorial marine waters of the State. The Ocean Plan stipulates that discharges beyond beyond territorial waters may be regulated to assure no violation of the Ocean Plan will occur.

19. The EPA Region 9 has concurred on the Regional Board's determination that the discharger's antidegradation analysis adequately demonstrates compliance with federal antidegradation requirements and State Board Resolution 68-16. This discharger's antidegradation analysis is part of the administrative record.

20. The Regional Board adopted a revised Water Quality Control Plan, San Francisco Bay Region (Basin Plan) on December 17, 1986. The State Board adopted the Basin Plan on May 21, 1987. The Basin Plan states that provisions of the Ocean Plan apply to ocean waters.

21. The beneficial uses of the Pacific Ocean and contiguous water bodies in the vicinity of the discharge are:

    a. Water contact recreation
    b. Non-contact water recreation
    c. Wildlife habitat
    d. Preservation of rare and endangered species
    e. Marine habitat
    f. Fish migration and spawning
    g. Navigation
    h. Commercial and sport fishing

22. An Operations and Maintenance Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all equipment, facilities, and recommended operating strategies, process control monitoring, and maintenance activities. In order to remain a useful and relevant document, this manual should be kept updated to reflect significant changes in plant facilities or activities.

23. NPDES Permit No. CA0038415, governing discharges from the wet-weather diversion structures in this service area, allows combined sewer overflows only under the following conditions:

    a. Maximize the volume of wastewater treated and discharged to the Southwest Ocean Outfall, consistent with the hydraulic and treatment capacities of the discharger's storage, transport, and treatment facilities; and

    b. Assure that all discharges from the diversion structures are first baffled to reduce the volume of floatables.

24. On September 1, 1983, the EPA designated the Discharger as one of their non-federal representatives to the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) to conduct informal consultations on endangered species, under Section 7 of the Endangered Species Act. The Discharger wrote to the FWS and NMFS on November 1, 1983, requesting a list of any listed or proposed threatened or endangered species (or critical habitats) that may be present in the area affected by the proposed 301(h) discharge. The FWS responded by letter on November 30, 1983, stating that "to the best of our knowledge there are no listed or proposed species within the area of the project." The only species for which the NMFS has management responsibility and that is likely to occur near ocean outfalls is the gray whale (Eschrichtius robustus). The NMFS's November 9, 1983, letter states that the NMFS has concluded that granting 301(h) variances in California probably would not affect the gray whale population.

25. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21000) of Division 13 of the Public Resources Code in accordance with section 13389 of the California Water Code.

26. On October 27, 1987, EPA Region 9 and the Regional Board notified the Discharger and interested agencies and persons of their intent to issue a NPDES permit, revise waste discharge requirements, provide them with an opportunity to submit their written views and recommendations and take a water quality standards action regarding antidegradation, and scheduled a public hearing.

27. In a public hearing on December 2, 1987, the Regional Board heard and considered all comments pertaining to the discharge. At a subsequent meeting on June 15, 1988, the Regional Board found this Order consistent with the above findings.

IT IS HEREBY ORDERED, pursuant to authority in Section 13377 of the California Water Code, and applicable provisions of the Federal Clean Water Act and amendments, that the City of San Francisco, its agents, successors, and assigns, may discharge waste from the Richmond-Sunset Sewerage Zone through the Southwest Ocean Outfall providing they comply upon the effective date of this permit with the following:

[General permit conditions, definitions and the method of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements" (see paragraph D.3 of this Order).]

A. Discharge Prohibitions

1. Discharge of wastewater to federal waters at a location other than 37° 42' 18" North latitude, 122° 34' 39" West longitude, is prohibited.

2. "Bypass" of wastewater to waters under State jurisdiction either at the treatment plant or from any of the collection systems and pump stations tributary to the treatment plant is prohibited. During wet-weather, overflows will be allowed, consistent with the prohibitions and provisions of NPDES Permit No. CA0038415 to minimize adverse water quality impact, as identified in Finding No. 21, above.

B. Effluent Limitations

1. Representative samples of the combined effluent and stormwater discharge, measured from sampling station E-001D (see "Monitoring and Reporting Program"), through the Southwest Ocean Outfall shall not exceed the following limits:

a.

Constituent	Unit of Measurement	Monthly Average	Weekly Average	Maximum at any Time
Grease and Oil	mg/L	25	40	75
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	JTU	75	100	225
pH	Within limits of 6.0 to 9.0 at all times.			
"Toxicity Concentration"* (TC_a)	tu_a	1.5	2.0	2.5

* Throughout this order and permit, terms within quotation marks (" ") are defined in the 'Standard Provisions an Reporting Requirements'.

Constituent	Units	Monthly Average	Weekly Average	Maximum at any Time
BOD, 5-day (at 20°C)	mg/L	193	290[16]	386[16]
Total Suspended Solids	mg/L	60	90[16]	120[16]

b. Toxic Effluent Limitations

Constituent	Unit[15]	Six-Month Median[2]	Daily Maximum[2]	Instantaneous Maximum[2]
Arsenic	ug/L	298	1710	4550
Cadmium	ug/L	177	708	1770
Chromium (Hexavalent)[3]	ug/L	118	472	1180
Copper	ug/L	179	1060	2830
Lead	ug/L	472	1890	4720
Mercury	ug/L	6.00	30.0	79.0

Constituent	Unit	Six-Month Median[2]	Daily Maximum[2]	Instantaneous Maximum[2]
Nickel	ug/L	1180	4720	11800
Silver	ug/L	17.3	96.9	256
Zinc	ug/L	720	4260	11340
Cyanide	ug/L	295	1180	2950
Total Chlorine Residual	ug/L	118	649	7430
Ammonia (as N)	ug/L	35400	142000	354000
Phenolic Compounds (non-chlorinated)	ug/L	1770	7080	17700
Chlorinated Phenolics	ug/L	59.0	236	590
Aldrin and Dieldrin	ug/L	0.118	0.236	0.354
Chlordane and Related Compounds	ug/L	0.177	0.354	0.531
DDT and Derivatives	ug/L	0.059	0.118	0.177
Endrin	ug/L	0.118	0.236	0.354

Constituent	Unit	Six-Month Median[2]	Daily Maximum[2]	Instantaneous Maximum[2]
HCH	ug/L	0.236	0.472	0.708
PCBs	ug/L	0.177	0.354	0.531
Toxaphene	ug/L	0.413	0.826	1.24
"Toxicity Concentration" (TC_c)	tu_c	—	90.0	—
Radioactivity	Not to exceed limits specified in Title 17, Chapter 5, Subchapter 4, Group 3, Article 3, Section30269 of the California Administrative Code.			

c. The annual average suspended solids mass emission rate shall not exceed 18,000 lb/day (8160 Kg/day), or 6,560,000 lb/yr (2,980,000 Kg/yr).

d. The concentration of total coliform bacteria in the effluent derived directly from the treatment plant shall not exceed 10^6 MPN/100 mL. This effluent limitation shall not become effective until January 1, 1989, in order to allow the discharger time to complete studies required in EPA's Administrative Order and to allow EPA Region 9 and the Regional Board to evaluate the results. This effluent limitation may be deleted or modified if both EPA Region 9 and the Regional Board determine that year-round disinfection is not needed to fully protect beneficial water uses. The Regional Board shall hold public hearings prior to making such a determination. This limitation shall not apply during wet-weather periods when combined wastewater is discharged to the outfall from the Westside Transport.

e. Effluent daily dry-weather flow shall not exceed a monthly average of 25.6 MGD (97,000 m^3/day). Maximum at anytime shall not exceed 145 MGD.

f. Actual flow and plant operation must conform to the provisions of the State Implementation Plan limitations on anticipated growth and emissions.

2. Effluent discharged from the Southwest Ocean Outfall shall be essentially free of materials and substances that:

   a. float or become floatable upon discharge.

   b. may form sediments which "degrade" benthic communities or other aquatic life.

   c. accumulate to toxic levels in marine waters, sediments or biota.

   d. "significantly" decrease the "natural light" to benthic communities and other marine life.

   e. result in aesthetically undesirable discoloration of the ocean surface.

C. Receiving Water Limitations*

1. Discharge shall not cause the following water quality objectives to be violated in ocean waters upon completion of "initial dilution":

   a. Body-Contact Standards

   Within a zone bounded by the shoreline and a distance of 1000 feet from the shoreline or the 30-foot depth contour, whichever is farther from the shoreline, and in areas outside this zone used for body contact sports, as determined by the Regional Board, but including all "kelp beds", the following bacteriological objectives shall be maintained throughout the water column:

   (1) The most probable number of total coliform organisms shall be less than 1,000 per 100 mL (10 per mL); provided that not more than 20 percent of samples taken at any sampling station in any 30-day period may exceed 1,000 per 100 mL (10 per mL), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 mL (100 per mL).

   (2) The fecal coliform concentration, based on a minimum of not less than five samples for any 30 day period, shall not exceed a log mean of 200 per 100 mL, and more than ten percent of the total samples during any 60-day period shall not exceed 400 per mL.

   The "initial dilution" zone of wastewater outfalls shall be excluded from designation as "kelp beds" for purposes of bacteriological standards.

* Receiving Water Limitations are based on water quality objectives as found in the Water Quality Control Plan - Ocean Waters of California (Ocean Plan) (State Water Resource Control Board, 1983).

b. "Shellfish" Harvesting Standards

At all areas where "shellfish" may be harvested for human consumption, as determined by the Regional Board, the following bacteriological objectives shall be maintained throughout the water column:

In any 30-day period, the "median" total coliform concentration shall not exceed 70 per 100 mL, and not more than ten percent of the samples shall exceed 230 per 100 mL. This limit applies only when shellfish may be legally harvested (November through April of each year.)

2. Physical Characteristics

a. Floating particulates and grease and oil shall not be visible.

b. The discharge of "waste" shall not cause aesthetically undesirable discoloration of the ocean surface.

c. "Natural light" shall not be "significantly" reduced at any point outside the "zone of initial dilution" as the result of the discharge of "waste".

d. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are "degraded".

3. Chemical Characteristics

a. The dissolved oxygen concentration shall not be depressed more than 10 percent from that which occurs naturally as a result of the discharge of oxygen demanding "waste" materials.

b. The pH shall not be changed more than 0.2 units from that which occurs naturally.

c. The dissolved sulfide concentrations of waters in and near sediments shall not be "significantly" increased above that present under natural conditions.

d. The concentrations of substances set forth in Effluent Limitation No. B.1.b. shall not be increased in marine sediments to levels which would "degrade" indigenous biota.

e. The concentration of organic materials in marine sediments shall not be increased to levels which would "degrade" marine life.

f. Nutrient materials shall not cause objectionable aquatic growth or "degrade" indigenous biota.

4. Biological Characteristics

   a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be "degraded."

   b. The natural taste, odor, and color of fish, "shellfish," or other marine resources used for human consumption shall not be altered.

5. Radioactivity

   a. Discharge of radioactive "waste" shall not "degrade" marine life.

6. General Standards

   a. The discharge shall not cause deposition of visible sewage solids or other physical evidence of the waste discharge on beaches, rocks, or shorelines, and material of sewage origin shall not be visible in the water.

   b. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Board, as required by the Clean Water Act and regulations adopted thereunder.

   c. The discharge from the City of San Francisco Southwest Ocean Outfall shall not interfere with the attainment or maintenance of that water quality which assures protection of public Water supplies and the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife and allows recreational activities in and on the water.

   d. "Waste" shall be discharged in a manner which provides sufficient "initial dilution" to minimize the concentrations of substances not removed in the treatment.

D. Provisions

1. A permit and the privilege to discharge waste into federal waters affecting state waters are conditional upon the discharge complying with provisions of Division 7 of the California Water Code and of the Clean Water Act (as amended or as supplemented by implementing guidelines and regulations) and with any more stringent effluent limitations necessary to implement water quality control plans, to protect beneficial uses, and to prevent nuisance. This order and permit shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Clean Water Act or amendments thereto and as Waste Discharge Requirements pursuant to the Porter-Cologne Water Quality Control Act. This order and

permit shall first be adopted by the Regional Board and then signed by the Regional Administrator. This order and permit shall become effective thirty (30) days after the service of notice of the Regional Administrator's decision (effective date: August 9, 1988).

2. The Discharger shall comply with the attached Monitoring and Reporting Program No. 88-106 , as ordered by the Executive Officer and the Regional Administrator.

3. The Discharger shall comply with all items of the attached 'Standard Provisions and Reporting Requirements' (also referred to as 'Standard Provisions').

4. The non-industrial source (toxic pollutant) control program shall be revised to comply with schedules and activities contained in 40 CFR §125.64(d) (see 'Standard Provisions and Reporting Requirements').

5. The Discharger shall maintain all Title II grant-funded secondary treatment facilities in a manner which ensures their operability as originally designed for the duration of this permit period.

6. This Order expires August 9, 1993 , and the Discharger must file a Report of Waste Discharge in accordance with Title 23, Chapter 3, Subchapter 9, of the California Administrative Code, not later than 180 days in advance of such expiration date if it wishes to continue the discharge. EPA will notify the Discharger, prior to the expiration date of this permit, on procedures for the continuation of a modified NPDES permit under Section 301(h) of the Clean Water Act or current EPA policies and regulations regarding Section 301(h) of the Clean Water Act.

7. This order and permit may be modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR §122.44, §122.62-§122.64, §125.62, and §125.64. Cause for taking such action includes, but is not limited to, failure to comply with any condition of this order and permit, endangerment to human health or the environment resulting from the permited activity, or acquisition of newly-obtained information which would have justified the application of different conditions if known at the time of order adoption and permit issuance. The filing of a request by the Discharger for an order and permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this order and permit.

8. Prior to December 31 of each year, the Discharger shall submit an engineering report to the Regional Board and EPA regarding sludge management. The report shall contain an estimate of the quantities of sludge to be generated during the upcoming calendar year; the location, amount of land, and method of application for disposal/reclamation (including topographic map); types of crops to be grown in the reclamation areas; and other specifics necessary to fully evaluate the operation.

This certifies that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 15, 1988, and of an NPDES permit signed by the Director, Water Management Division, U.S. Environmental Protection Agency, Region 9, on July 7, 1988

HARRY SERAYDARIAN
Director
Water Management Division
U.S. Environmental Protection Agency
Region 9

for the Regional Administrator

ROGER B. JAMES
Executive Officer
California Regional Water
Quality Control Board
San Francisco Bay Region

California Regional Water
Quality Control Board
San Francisco Bay Region

U.S. Environmental Protection Agency
Region 9

STANDARD PROVISIONS AND REPORTING REQUIREMENTS

A. Definitions

1. "Bypass", as defined in 40 CFR 122.41(m)(1)(i), means the intentional diversion of waste streams from any portion of a treatment facility, which includes all collection, storage and pumping systems.

2. "Chlordane and related compounds" shall mean the sum of chlordane (cis- and trans-), trans-nonachlor, oxychlordane, heptachlor, and heptachlor epoxide.

3. "Composite sample" means, for flow rate measurements, the arithmetic mean of no fewer than eight individual measurements taken at equal intervals for 24 hours or for the duration of discharge, whichever is shorter.

"Composite sample" means, for other than flow rate measurement,

a. A combination of at least eight individual portions obtained at equal time intervals for 24 hours, or the duration of the discharge, whichever is shorter. The volume of each individual portion shall be directly proportional to the discharge flow rate at the time of sampling.

OR

b. A combination of at least eight individual portions of equal volume obtained over a 24-hour period. The time interval will vary such that the volume of wastewater discharged between samplings remains constant.

The compositing period shall equal the specified sampling period, or 24 hours, if no period is specified.

4. "Annual average" means for 5-day BOD and total non-filterable residue (suspended solids), the concentration or mass emission rate during a calendar year.

5. "Daily discharge" means:

a. For flow rate measurements, the total measured flow rate during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

b. For pollutant measurements, the concentration or mass emission rate measured during a calendar day or during any 24-hour period reasonably representative of the calendar day for purposes of sampling.

6. "Daily maximum" limit means the maximum acceptable "daily discharge." For pollutant measurements, unless otherwise specified, the results to be compared to the "daily maximum" limit are based on "composite samples."

7. "DDT and Derivatives" shall mean the sum of the p,p' and o,p' isomers of DDT, DDD (TDE), and DDE.

8. "Degrade" means to impair. Determination of whether degradation has occurred and of the extent to which it has occurred shall be made by analysis of species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species.

9. "Duly authorized representative" is one whose:

a. Authorization is made in writing by a principal executive officer or ranking elected official;

b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

c. Written authorization is submitted to the Regional Board and EPA Region 9. If an authorization becomes no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements above must be submitted to the Regional Board and EPA Region 9 prior to or together with any reports, information, or applications to be signed by an authorized representative.

10. "Grab sample" is defined as any individual sample collected in a short period of time not exceeding 15 minutes. "Grab samples" shall be collected during normal peak loading conditions for the parameter of interest, which may or may not be during hydraulic peaks." It is used primarily in determining compliance with the "instantaneous maximum" limits identified in paragraph A.17.

11. "Hazardous substance" means any substance designated under 40 CFR §116 pursuant to Section 311 of the Clean Water Act.

12. "HCH" shall mean the sum of the alpha, beta, gamma (Lindane), and delta isomers of hexachlorocyclohexane.

13. "Heavy metals" are, for purposes of this order and permit, arsenic, cadmium, chromium, copper, lead, mercury, silver, nickel, and zinc.

14. "Incompatible pollutants" are:

    a. Pollutants which create a fire or explosion hazard in the POTW;

    b. Pollutants which will cause corrosive structural damage to the POTW, or wastewaters with pH lower than 5.0 pH units, unless the facilities are specifically designed to accommodate such wastewaters;

    c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

    d. Any pollutant, including oxygen-demanding pollutants (e.g., BOD) released into the wastewater system at a flow rate and/or pollutant concentration which will cause interference with the POTW.

    e. Heat in amounts which will inhibit biological activity in the POTW resulting in interference, or heat in such quantities that the temperature at the POTW treatment plant exceeds 40°C (104°F) unless the Regional Administrator of EPA, upon request of the POTW, approves alternate temperature limits.

15. "Indirect discharger" means a non-domestic discharger introducing pollutants into a publicly owned treatment and disposal system.

16. "Initial dilution" is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

    For a submerged buoyant discharge, characteristic of most municipal wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

    Numerically, initial dilution is expressed as the ratio of the volume of discharged effluent plus ambient water entrained during the process of initial dilution to the volume of discharged effluent.

17. "Instantaneous maximum" concentration is defined as the maximum value measured from any single "grab sample".

18. "Kelp beds" are, for purposes of the bacteriological standards of this order and permit, significant aggregations of marine algae of the genus Macrocystis. "Kelp beds" include the total foliage canopy of Macrocystis plants throughout the water column. Adventitious assemblages of kelp plants on waste discharge structures (e.g., outfall pipes and diffusers) do not constitute kelp beds for purposes of bacteriological standards.

19. "Log mean" is the geometric mean. Used for determining compliance with bacteriological standards, it is calculated using the following equation:

$$\text{Log Mean} = (C_1 \times C_2 \times \ldots \times C_n)^{1/N}$$

in which 'N' is the number of days samples that were analyzed during the period and 'C' is the concentration of bacteria (MPN/100 mL) found on each day of sampling.

20. "Mass emission rate" is obtained from the following calculation for any calendar day:

$$\text{Mass emission rate (lb/day)} = \frac{8.345}{N} \sum_{i=1}^{N} Q_i C_i$$

$$\text{Mass emission rate (kg/day)} = \frac{3.785}{N} \sum_{i=1}^{N} Q_i C_i$$

in which 'N' is the number of samples analyzed in any calendar day. 'Q_i' and 'C_i' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the 'N' grab samples that may be taken in any calendar day. If a composite sample is taken, 'C_i' is the concentration measured in the composite sample and 'Q_i' is the average flow rate occurring during the period over which samples are composited.

The daily concentration of all constituents shall be determined from the flow-weighted average of the same constituents in the combined waste streams as follows:

$$\text{Daily concentration} = \frac{1}{Q_t} \sum_{i=1}^{N} Q_i C_i$$

in which 'N' is the number of component waste streams. 'Q_i' and 'C_i' are the flow rate (MGD) and the constituent concentration (mg/L), respectively, which are associated with each of the waste streams. 'Q_t' is the total flow rate of the combined waste streams.

21. "Maximum allowable mass emission rate", whether for a 24-hour, 7-day, 30-day (monthly), or 6-month period, is a limitation expressed as a daily rate determined with the formulas in paragraph A.20., above, using the effluent concentration limit specified in this order and permit for the period and the specified allowable flow.

22. "Median" of an ordered set of values is that value below and above which there is an equal number of values, or which is the arithmetic mean of the two middle values, if there is no one middle value.

23. "Monthly average" is the arithmetic mean of daily concentrations, or of daily "mass emission rates", over the specified 30-day (monthly) period:

$$\text{Average} = \frac{1}{N} \sum_{i=1}^{N} X_i$$

in which 'N' is the number of days samples were analysed during the calendar period and 'X_i' is either the constituent concentration (mg/L) or "mass emission rate" (kg/day or lb/day) for each sampled day.

24. "Natural light" is used in this order and permit to mean the transmittance and total irradiance of sunlight.

25. "Overflow" means the intentional diversion of wet-weather flow from a combined sewer overflow discharge structure.

26. "Pesticides" are, for purposes of this order and permit, those six constituents referred to in 40 CFR §125.58(m) (demeton, guthion, malathion, mirex, methoxychlor, and parathion).

27. "Pollutant-free wastewater" means infiltration and inflow, storm water, cooling waters, and condensates which are essentially free of pollutants.

28. "Priority pollutants" are those constituents referred to in 40 CFR §401.15 and listed in the EPA NPDES Application Form 2C, pp. V-3 through V-9.

29. "Removal efficiency" is the ratio of pollutants removed by the treatment facilities to pollutants entering the treatment facilities. Removal efficiencies of a treatment plant shall be determined using "30-day averages" of pollutant concentrations ('C' in mg/L) of influent and effluent samples collected at about the same time and using the following equation (or its equivalent):

$$\text{Removal Efficiency (\%)} = 100 \times [1-(C_{Effluent}/C_{Influent})]$$

When preferred, the discharger may substitute mass loadings and mass emissions for the concentrations.

30. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a "bypass" or "overflow." It does not mean economic loss caused by delays in production.

31. "Shellfish" are organisms identified by the California Department of Health Services as shellfish for public health purposes (i.e., mussels, clams, and oysters).

32. "Significant" is used in a statistical sense in this order and permit. Specifically, the difference between two distributions of sampling results shall be considered significant if the difference between the mean values of the two distributions cn be obeserved with a confidence level of 95 percent.

33. "6-month median" means a moving "median" of daily values for any 180-day period in which daily values represent flow-weighted average concentrations within a 24-hour period. For intermettent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

34. "Sludge" means the solids, semi-liquid suspensions of solids, residues, screenings, grit, scum, and precipitates seperated from, or created in, wastewaterby the unit process of a treatment system. It also includes, but is not limited to, all supernatant, filtrate, centrate, decantate, and thickener overflow/underflow in the solids handling parts of the wastewater treatment system.

35. "Statistical analyses" that are useful in determining temporal and spatial trends in the marine environment include the following:

    a. Mean and standard deviation ($x \pm$ s.d.)

    b. Regression analyses (univariate and multivariate) [e.g., correlation coefficients (r)]

    c. Parametric techniques [e.g., Student's t-test, analysis of variance (ANOVA), Student Newman-keuls test (SNK), t-test for paired comparisons]

    d. Nonparametric techniques [e.g., Mann-Whitney U-test, Kruskal-Wallis one-way ANOVA, Friedman two-way ANOVA, chi-square test (or G-test)]

    e. Multivariate techniques [e.g., discriminant analysis, cluster analysis, principal component analysis (PCA), multivariate ANOVA]

    f. biological indicies as described in the 301(h) program document Recommended Biological Indicies for 301(h) Monitoring Programs[13]

36. "Toxic pollutant" means any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act or under 40 CFR §122, Appendix D. Violations of maximum daily discharge limitations are subject to the 24-hour reporting requirement (paragraph E.4.).

37. "Toxicity concentration": This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. The acute toxicity concentration (TC_a) expressed in acute toxicity units (tu_a) is calculated as:

$$TC_a\ (tu_a) = 100/[96\text{-hr TLm}(\%)]$$

where: TLm(%) is the Median Tolerance Limit (the percent waste giving 50 percent survival of test organisms).

TLm(%) shall be determined by static or continuous flow bioassay techniques specified in federal and/or state toxicity protocols[9]. Submission of bioassay results should include the information noted on pp. 30-34 of the State "Guidelines". The bioassays shall be performed using two fish species in parallel tests: one species shall be the three-spine stickleback (Gasterosteus aculeatus), and the other shall be the fathead minnow (Pimephales promelas). In addition, the Regional Board and/or EPA may specify test methods which are more sensitive than those specified above. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the TLm may be determined after the test samples are adjusted to remove the influence of those substances. When it is not possible to measure the 96-hour TLm due to greater than 50 percent survival of the test species in 100 percent waste, the acute toxicity concentration shall be calculated by the expression:

$$TC_a\ (tu_a) = \text{Log}\ (100 - S)\ /\ 1.7$$

where: S = percent survival in 100 percent waste. If S > 99, TC_a shall be reported as zero.

b. The chronic toxicity concentration (TC_c) expressed in chronic toxicity units (tu_c) is calculated as:

$$TC_c\ (tu_c) = 100\ /\ \text{NOEL}$$

where: NOEL is the No Observable Effect Level (the highest measured continuous concentration of an effluent that causes no observed effect on a test organism). NOEL shall be determined based on toxicity tests having chronic endpoints.

38. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations in the order and permit because of factors beyond the reasonable control of the discharger. It does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation, or those problems the discharger should have foreseen.

39. "Waste", waste discharge, discharge of waste, and discharge are used interchangeably in this order and permit. The requirements of this order and permit are applicable to the entire volume of water, and the material therein, which is disposed of to ocean waters.

40. "Weekly average" is the arithmetic mean of daily concentrations, or of daily "mass emission rates", over the specified 7-day period:

$$\text{Average} = \frac{1}{N} \sum_{i=1}^{N} X_i$$

in which 'N' is, the number of days samples were analyzed during the calendar period and 'X_i' is either the constituent concentration (mg/L) or "mass emission rate" (kg/day or lb/day) for each sampled day.

41. "Zone of initial dilution" (ZID) means, for purposes of designating monitoring stations, the region within a horizontal distance equal to a specified water depth (usually depth of outfall or average depth of diffuser) from any point of the diffuser or end of the outfall and the water column above and below that region, including the underlying seabed.

B. Prohibitions

1. Introduction of "incompatible pollutants" to the treatment system is prohibited.

2. Discharge of any radiological, chemical, or biological warfare agent or high-level radioactive "waste" into the ocean is prohibited.

3. Discharge of "toxic pollutants" in violation of effluent standards or prohibitions established under Section 307(a) of the Clean Water Act is prohibited.

4. Pipeline discharge of "sludge" or sludge drying bed leachate to the ocean is prohibited; the discharge of municipal and industrial "waste" sludge directly to the ocean, or into a "waste" stream that discharges to the ocean, is prohibited. The discharge of sludge digester supernatant directly to the ocean, or to a "waste" stream that discharges to the ocean without further treatment, is prohibited.

5. Intentional introduction of pollutants into the collection, treatment, or disposal system by an "indirect discharger" that may: (a) inhibit or disrupt the treatment process, system operation, or the eventual use or disposal of sludge; or (b) flow through the system to the receiving water is prohibited.

6. Intentional introduction of "pollutant free wastewater" to the collection, treatment, and disposal system for purposes of dilution is prohibited.

7. Any "bypass" of facilities, including the "waste" collection system, is prohibited. The Regional Board and EPA may take enforcement action against the discharger for "bypass", unless:

   a. "Bypass" was unavoidable to prevent loss of life, personal injury, or "severe property damage";

   b. There were no feasible alternatives to the "bypass", such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment down time. (This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a "bypass" which could occur during normal periods of equipment down time or preventive maintenance.); and

   c. The Discharger submitted a notice in advance of the need for a "bypass," to the State Department of Health Services, San Francisco Department of Public Health, Regional Board, and EPA at least ten days before the "bypass."

   For "bypasses," the discharger shall notify the State Department of Health Services, San Francisco Department of Public Health, Regional Board, and EPA of each such "bypass," in accordance with procedures outlined in paragraph E.4. of General Reporting Requirements. The written confirmation shall include information relative to the location; estimated volume; pH, BOD, and SS values; date and time; duration; cause; and remedial measures taken to effect cleanup and/or to prevent recurrence. Immediate measures shall be initiated to clean up wastes due to any such "bypass" and to abate the effects thereof or, in the case of threatened pollution or nuisance, to take other necessary remedial action.

8. Odors, vectors, and other nuisances of sewage or "sludge" origin beyond the limits of the treatment plant site due to improper operation of plant facilities, as determined by the Regional Board or EPA, are prohibited.

C. Provisions

1. Neither the treatment nor the discharge of pollutants shall create a pollution, contamination, or nuisance as defined by Section 13050 of the California Water Code.

2. The Discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with this order and permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. All of these procedures shall be described in an Operation and Maintenance Manual. The Discharger shall keep in a state of readiness all systems necessary, at any time, to achieve compliance with the conditions of this order and permit. All systems, both those in service and reserve, shall be inspected and maintained on a regular basis. Records shall be kept of the tests and made available to the regulatory agencies.

3. All facilities used for transport, treatment, or disposal of "wastes" shall be adequately protected against damage resulting from "overflow", washout, or inundation from a storm or flood having a recurrence interval of once in 100 years.

4. Collection, treatment, and disposal systems shall be operated in a manner that precludes, to the extent practicable, public contact with wastewater.

5. Collected screenings, "sludges," and other solids removed from liquid "wastes" shall be disposed in a manner approved by the Executive Officer of the Regional Board.

6. Wastewater treatment facilities subject to this order and permit shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Chapter 3, Subchapter 14, Title 23 of the California Administrative Code.

7. The Regional Board, EPA, and other authorized representatives shall be allowed:

   a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this order and permit;

   b. Access to copy any records that must be kept under the conditions of this order and permit;

   c. To inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this order and permit; and

d. To photograph, sample, and monitor for the purpose of assuring compliance with this order and permit.

8. After notice and opportunity for a hearing, this order and permit may be terminated or modified for cause, including, but not limited to:

   a. Violation of any term or condition contained in this order and permit;

   b. Obtaining this order and permit by misrepresentation, or by failure to disclose fully all relevant facts;

   c. Endangerment to human health or environment that can only be regulated to acceptable levels by order and permit modification or termination; and

   d. Any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

9. This order and permit does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the Discharger from liabilities under federal, state or local laws, nor create a vested right for the Discharger to continue the "waste discharge.

10. The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this order and permit which has a reasonable likelihood of adversely affecting human health or the environment, including such accelerated or additional monitoring as necessary to determine the nature and impact of the violation.

11. The provisions of this order and permit are severable. If any provision of this order and permit is found invalid, the remainder of this order and permit shall not be affected.

12. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for "toxic pollutants" within the time provided in the regulations that establish these standards or prohibitions, even if this order and permit has not yet been modified to incorporate the requirement. If such standards or prohibitions are more stringent than any limitation upon such pollutants in this order and permit, this order and permit shall be modified or reissued by the Regional Board and EPA in accordance with such toxic effluent standards or prohibitions and so notify the discharger.

13. If additional or revised water quality standards are approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Regional Board and EPA will revise and modify this order and permit in accordance with such more stringent standards.

14. The Discharger shall furnish, within a reasonable time, any information the Regional Board or EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this order and permit, or to determine compliance with this order and permit.

15. The Discharger shall maintain in good working order its backup or auxillary facilities (Westside Transport System) for use when necessay to achieve compliance with the conditions of the permit. All treatment facility equipment shall be located to minimize failure due to moisture, liquid spray, flooding, and other physical phenomena. If an alternate power source is not in existence, the Discharger shall halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power.

16. This permit may be reopened and modified by the permitting authorities to incorporate any new regulations promulgated for the use and disposal of sewage sludge under section 405 of the Clean Water Act, new methods, sampling, or reporting requirements, or other requirements of state or local authorities.

D. General Monitoring Requirements

Influent, effluent, and receiving water monitoring must be conducted according to the current test procedures approved by EPA under 40 CFR §136, entitled 'Guidelines Establishing Test Procedures for the Analysis of Pollutants', unless other test procedures have been specified in this order and permit. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Other EPA guidelines for chemical analysis are found in Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020, Revised March, 1983) and Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (EPA-600/4-28-057, July, 1982). In addition, the Regional Board and/or EPA, at their discretion, may specify tests which are more sensitive than those found in the above guidelines.

2. The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. An annual report shall be submitted by March 30 of each year which summarizes the QA activities for the previous year. When requested by EPA, the discharger will participate in the NPDES discharge monitoring report QA performance study. The Discharger must have a success rate equal to or greater than 80 percent.

3. Water quality analyses performed in order to monitor compliance with this order and permit shall be by a laboratory certified by the State Department of Health Services for the constituent(s) being analyzed. Bioassay(s) performed in order to monitor compliance with this order and permit shall be in accordance with guidelines approved by the State Water Resources Control Board and the State Department of Fish and Game. If the laboratory used or proposed for use by the Discharger is not certified by the California Department of Health Services, or where appropriate, the Department of Fish and Game, due to restrictions in the State's laboratory certification program, or in cases where certification does not exist for other reasons, the Discharger shall be considered in compliance with this provision provided:

   a. Data results remain consistent with results of samples analyzed by the Regional Board;

   b. A quality assurance program is used at the laboratory, including a manual containing steps followed in this program that is available for inspections by the staff of the Regional Board and EPA; and

   c. Certification is pursued in good faith and obtained as soon as possible after the program is reinstated.

4. Influent samples shall be representative of the influent to the treatment plants. If possible, influent samples shall be taken at all points of inflow to the wastewater treatment plants, upstream of any in-plant return flows.

5. Effluent samples shall be taken downstream of the last addition of waste to the discharge works where a representative sample may be obtained prior to mixing with the receiving waters.

6. The results of any monitoring which is conducted, using approved test procedures and at locations specified in this order and permit, more frequently than required by this order and permit shall be included in calculations and reports.

7. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. The flow measurement system shall be calibrated at least once per year, or more frequently as necessary, to ensure continued accuracy of the system.

8. The Discharger shall maintain records of all monitoring information, including all calibration and maintenance records; all original strip chart recordings for continuous monitoring instrumentation; the date, exact place, and time of sampling of measurements; the individual(s) who performed the sampling or measurements; the date(s) analyses were performed; the laboratory and individual(s) who performed the analyses; the analytical techniques or methods used; and results of all analyses.

Records shall be maintained for a minimum of five years. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board or EPA. It is recommended that the Discharger maintain the results of all analyses indefinitely.

E. General Reporting Requirements

Monitoring results shall be reported at intervals and in a manner specified in the 'Monitoring and Reporting Program' of this order and permit.

2. Monitoring reports shall be submitted to the Regional Board and to EPA on preprinted Discharge Monitoring Report Forms supplied by EPA and other forms supplied by the Regional Board, or an alternative form either specified or approved by the Executive Officer, according to the following schedule:

Monitoring Frequency	Report Due
Continuous, Daily, Weekly, Monthly	By the last day of the following month
Quarterly	April 30, July 30, October 30, January 30
Semiannually	November 30, March 30
Annually	March 30

In addition, all receiving water data generated by this monitoring program shall be submitted quarterly to EPA in accordance with the specifications in the ODES (Ocean Data Evaluation System) Data Submissions Guidelines Manual. In general, the required formats represent simplified versions of the standard file formats developed by the National Oceanographic Data Center (NODC). NODC codes for taxonomy, equipment, environmental records, etc. are also used. Data should be submitted on magnetic tape with the following characteristics: 9 track, 6250 BPI, in either ASCII or EBCDIC characters.

3. Reports of marine monitoring surveys conducted to meet receiving water monitoring requirements of the "Monitoring and Reporting Program" shall include, as a minimum, the following information:

a. A description of climatic and receiving water characteristics at the time of sampling (weather observations, floating debris, discoloration, wind speed and direction, swell or wave action, time of sampling, tide height, etc.).

b. A description of sampling stations, including differences unique to each station (e.g., station location, sediment grain size, distribution of bottom sediments, rocks, shell litter, calcareous worm tubes, etc.).

c. A description of the sample collection and preservation procedures used in the survey.

d. A description of the specific method used for laboratory analysis. In general, analyses shall be conducted according to paragraph D.1. of General Monitoring Requirements. However, variations in procedure may be acceptable to accommodate the special requirements of sediment analysis. All such variations must be reported with the test results.

e. An in-depth discussion of the results of the survey. The discussion shall compare data from the reference station(s) with data from the outfall stations. All tabulations and computations shall be explained.

4. Any noncompliance that may endanger health or the environment shall be reported verbally immediately, and in no case later than 24 hours from the time the Discharger becomes aware of the noncompliance, to the Regional Board (415) 464-1255 during working hours, or (800) 852-7550 after working hours. Unless waived by the Executive Officer, a written report shall be submitted to the Regional Board and EPA within five days of awareness of any noncompliance that may endanger health or the environment. Such written report shall contain a description of the noncompliance and its cause; the period of noncompliance (including exact dates, times) or anticipated duration; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. This provision includes but is not limited to:

   a. Violation of a discharge prohibition;

   b. Any "upset", or unanticipated "bypass" that exceeds an effluent limitation; and

   c. Violation of an instantaneous maximum or daily maximum discharge limitation for any "toxic pollutant" or "hazardous substance."

5. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule shall be submitted within 14 days following each scheduled date unless otherwise specified within this order and permit. If reporting noncompliance, the report shall include a description of the reason, a description and schedule of tasks necessary to achieve compliance, and an estimated date for achieving full compliance. A second report shall be submitted within 14 days of full compliance.

6. All instances of noncompliance not reported under paragraph numbers E.2., E.4., and E.5. of General Reporting Requirements shall be reported at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph E.4.

7. The Discharger shall notify the Regional Board and EPA not later than 180 days in advance of any planned changes to the permitted facility that may result in noncompliance with this order and permit.

8. Within 90 days after the "30-day (monthly) average" daily dry-weather flow equals or exceeds 75 percent of the design capacity of waste treatment and/or disposal facilities subject to this order and permit, the agency which owns such facilities shall file a written report with the Regional Board and EPA. The agency's senior administrative officer shall sign a letter which transmits that report and certifies that the Discharger's policy-making body is adequately informed about the report's contents. The report shall include:

   a. The average daily flow for the month, the date on which the instantaneous peak flow occurred, the rate of that peak flow, and the total flow for the day;

   b. The best estimate of when the monthly average daily dry-weather flow rate will equal or exceed the design capacity of the facilities; and

   c. A schedule for studies, design, and other steps needed to provide additional capacity for waste treatment and/or disposal facilities before the waste flow rate equals the capacity of present units. (Reference: Sections 13260, 13267(b), and 13268, California Water Code.)

   This requirement is applicable to those facilities which have not reached 75 percent of capacity as of the effective date of this order and permit and to those facilities which have reached 75 percent of capacity by that date but for which no such report has been previously submitted.

9. The Discharger shall submit all reports required by this order and permit to the following agencies, as appropriate:

   Executive Officer
   California Regional Water Quality Control Board
   San Francisco Bay Region
   1111 Jackson Street, Room 6040
   Oakland, CA 94607

   Regional Administrator
   U.S. Environmental Protection Agency, Region 9
   215 Fremont Street (W-5-1)
   San Francisco, CA 94105

District Engineer, Sanitary Engineering Branch
Department of Health Services
State of California
2151 Berkeley Way
Berkeley, CA 94704

Director of Environmental Health
Department of Public Health
City and County of San Francisco
101 Grove Street
San Francisco, CA 94102

10. Transfer of control or ownership of a waste discharge facility must be preceded by a notice to the Regional Board and EPA at least 30 days in advance of the proposed transfer date. The notice must include a written agreement between the existing discharger and proposed discharger containing specific dates for transfer of responsibility, coverage, and liability between them. Whether an order and permit may be transferred without modification or revocation and reissuance is at the discretion of the Regional Board and EPA. If order and permit modification or revocation and reissuance is necessary, transfer may be delayed 180 days after the Regional Board's and EPA's receipt of a complete application for waste discharge requirements and an NPDES permit.

11. Should the discharger discover that it failed to submit any relevant facts or that it submitted incorrect information in a report, it shall promptly submit the missing or correct information.

12. All reports required by this order and permit and other information requested by the Regional Board or EPA shall be signed by a principal executive officer or ranking elected official, or by a "duly authorized representative" of that person.

13. Any person signing a report shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

14. By March 30th of each year, the Discharger shall submit an annual report to the Regional Board and EPA Region 9. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. The Discharger shall discuss the compliance record and corrective actions taken, or which may be needed, to bring the discharge into full compliance with this order and permit.

    The report shall address operator certification and provide a list of current operating personnel and their grade of certification. The report shall include the date of the facility's Operation and Maintenance Manual, the date the manual was last reviewed, and whether the manual is complete and valid for the current facilities. The report shall restate, for the record, the laboratories used by the Discharger to monitor compliance with this order and permit and provide a summary of performance relative to paragraph D, General Monitoring Requirements.

F. Pretreatment Requirements

1. The Discharger shall be responsible for the performance of all pretreatment requirements contained in 40 CFR §403 and shall be subject to enforcement actions, penalties, fines, and other remedies by the EPA, or other appropriate parties, as provided in the Clean Water Act, as amended. The Discharger shall implement and enforce its Approved POTW Pretreatment Program. The Discharger's Approved POTW Pretreatment Program is hereby made an enforceable condition of this order and permit. EPA may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.

2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d), and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to Federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.

3. The Discharger shall perform the pretreatment functions as required in 40 CFR §403 including, but not limited to:

    a. Implement the necessary legal authorities as provided in 40 CFR §403.8(f)(1);

    b. Enforce the pretreatment requirements under 40 CFR §403.5 and §403.6;

    c. Implement the programmatic functions as provided in 40 CFR §403.8(f)(2); and

    d. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR §403.8(f)(3).

4. By August 31 of each year, the Discharger shall submit an annual report to the Regional Board and EPA describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any condition or requirement of this order and permit, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements. This report shall contain, but not be limited to, the following information:

   a. The results of all influent, effluent, and sludge sampling and analysis performed by the Discharger. Sampling and analysis occurring in each quarterly reporting period identified in paragraph d. below shall be reported in the quarterly reports required under paragraph d. The Discharger shall also provide any influent, effluent, or sludge monitoring data for pollutants other than the "priority pollutants" which the Discharger believes may be causing or contributing to interference, pass through, or adversely impacting sludge quality.

   b. A discussion of upset, interference, or pass through incidents, if any, at the POTW which the Discharger knows or suspects were caused by industrial users of the POTW system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the industrial user(s) responsible. The discussions shall also include a review of the applicable pollutant limitations to determine whether any additional limitations or changes to existing requirements may be necessary to prevent pass through, interference, or noncompliance with sludge disposal requirements.

   c. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

   d. An updated list of the Discharger's industrial users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to Federal Categorical Standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the Federal Categorical Standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status of each industrial user by employing the following descriptions:

(1) In compliance with Baseline Monitoring Report requirements (where applicable);

(2) Consistently achieving compliance;

(3) Inconsistently achieving compliance;

(4) Significantly violated applicable pretreatment requirements defined by 40 CFR §403.8(f)(2)(vii);

(5) On a schedule to achieve compliance (include the date final compliance is required);

(6) Not achieving compliance and not on a compliance schedule; or

(7) The Discharger does not know the industrial user's compliance status.

A report describing the compliance status of any industrial user characterized by descriptions in items d.(3) through (7) above shall be submitted quarterly from the annual report date to the Regional Board and EPA. The report shall identify the specific compliance status of each such industrial user. This quarterly reporting requirement shall commence upon issuance of this order and permit.

e. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding industrial users. The summary shall include:

(1) The names and addresses of the industrial users subject to surveillance by the Discharger and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

(2) The conclusions or results from the inspection or sampling of each industrial user.

f. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

(1) Warning letters or notices of violation regarding the industrial users, apparent noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the Federal Categorical Standards or local discharge limitations;

(2) Administrative Orders regarding the industrial users, noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the violation concerned the Federal Categorical Standards or local discharge limitations;

(3) Civil actions regarding the industrial users' noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the violation concerned the Federal Categorical Standards or local discharge limitations;

(4) Criminal actions regarding the industrial users, noncompliance with Federal Categorical Standards or local discharge limitations. For each industrial user, identify whether the violation concerned the Federal Categorical Standards or local discharge limitations;

(5) Assessment of monetary penalties. For each industrial user identify the amount of the penalties;

(6) Restriction of flow to the POTW; or

(7) Disconnection from discharge to the POTW.

g. A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's Approved POTW Pretreatment Program including, but not limited to changes concerning: the program's administrative structure; local industrial discharge limitations; monitoring program or monitoring frequencies; legal authority or enforcement policy; funding mechanisms; resource requirements; or staffing levels.

h. A summary of the annual pretreatment budget, including the costs of pretreatment program functions and equipment purchases.

i. A summary of public participation activities to involve and inform the public.

j. A description of any changes in sludge disposal methods and a discussion of any concerns not described elsewhere in the report.

G. Nonindustrial Source Control Program

In accordance with 40 CFR §125.64(d), the discharger shall implement the Nonindustrial Source Control Program according to the following time schedule:

	Task	Compliance Date	Report of Compliance Due
1.	Submit draft plan and schedule of activities for program to Regional Board and EPA	3 months after effective date of permit	1 month after compliance date
2.	Begin implementation of plan and schedule including public education program	18 months after effective date of permit	1 month after compliance date
3.	Submit progress report	As specified in schedule of activities	Include report in annual report

H. Enforcement

1. The Discharger must comply with all conditions of this order and permit. Order and permit noncompliance violates State and Federal laws and is grounds for enforcement action; for order and permit termination, revocation and reissuance, or modification; or for denial of a renewal application for waste discharge requirements and an NPDES permit.

   The California Water Code provides that any person who violates a waste discharge requirement or a provision of the California Code is subject to civil penalties of up to $5,000 per day, $10,000 per day, or $25,000 per day of violation, or when violation involves the discharge of pollutants, is subject to civil penalties of up to $10 per gallon per day or $20 per gallon per day of violation; or some combination thereof, depending on the violation, or upon the combination of violations.

2. Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained in this order and permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than $20,000 per day of violation, or imprisonment of not more than four years, or both.

   For a second conviction under California Water Code 133876, such a person is subject to a fine of not more than $25,000 per day of violation, and imprisonment of not more than 6 months, or both.

3. Any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this order and permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than $20,000 per day of violation, or imprisonment of not more than four years, or both.

4. Any person who causes a violation of any condition in this order and permit is subject to a civil penalty not to exceed $25,000 per day of each violation. Any person who negligently causes a violation of any condition in this order and permit is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both for a first conviction. For a second conviction, such a person is subject to a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two years, or both.

5. Any person who knowingly causes violation of any condition of this permit is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than three years, or by both for a first conviction. For a second conviction, such a person is subject to a fine of not more than $100,000 per day of violation, or by imprisonment of not more than six years, or both.

6. Any person who knowingly causes a violation of any condition of this permit and, by so doing, knows at that time that he thereby places another person in imminent danger of death or serious bodily injury shall be subject to a fine of not more than $250,000, or imprisonment of not more than 15 years, or both. A person who is an organization and violates this provision shall be subject to a fine of not more than $1,000,000 for a first conviction. For a second conviction under this provision, the maximum fine and imprisonment shall be doubled.

7. It shall not be a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this order and permit.

8. A discharger seeking to establish the occurrence of an "upset" has the burden of proof. A discharger who wishes to establish the affirmative defense of "upset" shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An "upset" occurred and that the Discharger can identify the cause(s) of the "upset";

   b. The permitted facility was, at the time of "upset," being properly operated;

   c. The Discharger submitted notice of "upset" as specified in paragraph E.4. of General Reporting Requirements; and

   d. The Discharger complied with any remedial measures required under paragraph C.10. of Provisions.

   No determination made during administrative review of claims that non-compliance was caused by "upset", and before an action for non-compliance, is final administrative action subject to judicial review.

ENVIRONMENTAL PROTECTION AGENCY, REGION 9
AND
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

MONITORING AND REPORTING PROGRAM
PERMIT NO. CA0037681 and ORDER NO. 88- 106
FOR
CITY AND COUNTY OF SAN FRANCISCO
WESTSIDE POLLUTION CONTROL FACILITY
AND
SOUTHWEST OCEAN OUTFALL

Under 40 CFR §125.62, the monitoring program for a Discharger receivinga 301(h) modified National Pollutant Discharge Elimination System (NPDES) permit shall:

- Document short and long-term effects of the discharge on receiving waters, sediments, biota, and on beneficial uses of the receiving water.
- Determine compliance with NPDES permit items and conditions.
- Assess the effectiveness of industrial pretreatment and toxics control programs.

EPA Region 9 and the Regional Board may revise the monitoring program presented herein, after a preliminary data base is established. The program will be reviewed at annual intervals to assess its effectiveness at meeting the objectives stated above.

The Discharger will submit an annual report after collection and analysis of first year data. A detailed re-analysis of program scope and methodology will be performed and submitted as part of this report to aid EPA and Regional Board staffs in their evaluations. Subjects to be addressed include:

- Priority pollutants
- Sampling methodology; QA/QC procedures
- Cost effectiveness
- Achievement of program objectives

Recommendations and scientific rationale for modifications which may increase the effectiveness of the program will be presented. Subsequent annual reports may include such analyses if appropriate.

The monitoring data will be used by the Regional Board and EPA to assess whether the 301(h)-modified NPDES permit should be terminated or renewed and to determine compliance with State water quality standards and conditions of this order and permit.

To the extent practicable, all components of the monitoring program (e.g., water column, benthic biota, bottom sediment) with the same sampling schedule should be conducted concurrently.

I. INFLUENT MONITORING

Influent monitoring is intended to:

- Determine compliance with NPDES permit conditions and water quality standards.
- Assess treatment plant performance.
- Assess the effectiveness of the pretreatment program.

Sampling stations shall be established at each point of inflow to the treatment plant and shall be located upstream of any in-plant return flows, where possible, and where representative samples of the influent can be obtained.

The influent monitoring program is as follows:

Parameter	Units	Type of Sample	Minimum Frequency of Analysis
Inflow	MGD	recorder/totalizer	Continuous
pH		Grab	Daily
Suspended Solids	mg/L	24-hr. "Composite"	Daily
Biochemical Oxygen Demand, 5-Day	mg/L	24-hr. Composite	Monthly
Grease and Oil	mg/L	Grab	2 times/week
Chromium (hexavalent)[5]	ug/L	24-hr. Composite	Monthly[4]
Arsenic	ug/L	" "	Twice a year (October & February)
Cadmium	ug/L	" "	" "
Copper	ug/L	" "	" "
Lead	ug/L	" "	" "
Mercury	ug/L	" "	" "
Nickel	ug/L	" "	" "
Silver	ug/L	" "	" "
Zinc	ug/L	" "	" "
Cyanide	ug/L	" "	" "
Phenolic Compounds	ug/L	" "	" "
Chlorinated Phenolics	ug/L	" "	" "
Aldrin and Dieldrin	ug/L	" "	" "
"Chlordane and Related Compounds"	ug/L	" "	" "
"DDT and Derivatives"	ug/L	" "	" "
Endrin	ug/L	" "	" "
"HCH"	ug/L	" "	" "
PCBs	ug/L	" "	" "
Toxaphene	ug/L	" "	" "
Remaining "Priority Pollutants"[6]	ug/L	" "	" "
"Pesticides"	ug/L	" "	" "

II. EFFLUENT MONITORING

Effluent monitoring is intended to:

- Determine compliance with NPDES permit conditions and water quality standards.
- Identify operational problems in order to improve plant performance.
- Provide information on waste characteristics and flows for use in interpreting water quality and biological data.

Description of Sampling Station:

E - 001D At any point in the land outfall where the point of discharge and the point at which all waste tributary to the land outfall are present.

The measurement of "priority pollutants" and "pesticides" in the effluent will be required under dry-weather conditions and under wet-weather conditions. Sampling frequency and the number of "priority pollutants" and "pesticides" to be analyzed may be modified after the first year depending on detection of specific pollutants during the first year of monitoring. However, all Ocean Plan Table B constituents and those "priority pollutants" and "pesticides" detected during the first year of the monitoring program must be measured throughout the term of the permit unless and/or until sufficient verifiable data exist to show that they are no longer present in the effluent.

The effluent monitoring program is as follows:

Parameter	Units	Type of Sample	Minimum Frequency of Analysis
			Station E-001D
Flow			
Volume	MG	recorder/totalizer	D
Maximum Instantaneous Rate	MGD		D
Total Chlorine Residual	mg/L	Grab	M*
Settleable Solids	mL/L	Grab	4H
Temperature	°C	Grab	D
pH	pH units	Grab	D
Suspended Solids	mg/L	24-hr Composite	D
Biological Oxygen Demand, 5-Day	mg/L	24-hr Composite	D
Grease and Oil	mg/L	Grab	2/W
Turbidity	JTU	24-hr Composite	W

*When a chlorination/dechlorination schedule is implemented, minimum frequency shall be changed to daily.

Parameter	Units	Type of Sample	Minimum Frequency of Analysis
			Station E-001D
Coliform (total)	MPN/100 mL	Grab	2/M
Enterococcus	CFU	Grab	2/M
Chromium	ug/L	24-hr Composite	M[7]
(hexavalent)[5]	ug/L	" "	2/M
Ammonia (as N)	tu$_a$	Flow-through test	2/M
TC_a[9]	tu$_c$	24-hr Composite	M
TC_c[8,10]	ug/L	" "	"
Arsenic	ug/L	" "	"
Cadmium	ug/L	" "	"
Copper	ug/L	" "	"
Lead	ug/L	" "	"
Mercury	ug/L	" "	"
Nickel	ug/L	" "	"
Silver	ug/L	" "	"
Zinc	ug/L	" "	"
Cyanide	ug/L	" "	"
Phenolic Compounds	ug/L	" "	"
Chlorinated Phenolics	ug/L	" "	2/M
Aldrin and Dieldrin	ug/L	" "	"
"Chlordane and Related Compounds"	ug/L	" "	"
"DDT and Derivatives"	ug/L	" "	"
Endrin	ug/L	" "	"
"HCH"	ug/L	" "	"
PCBs	ug/L	" "	"
Toxaphene	ug/L	" "	S
Remaining "Priority Pollutants"[6]	ug/L	" "	"
"Pesticides"	ug/L	" "	"
Radioactivity	pci/L	" "	"

LEGEND FOR TABLE

Frequency of Sampling

D	=	once each day
W	=	once each week
M	=	once each month
2/W	=	two days per week
5/W	=	five days per week
2/M	=	two days per month
4H	=	every four hours
S	=	twice a year (October & February)

Specifications for Effluent Sampling:

- Time composited samples of effluent shall be collected on days coincident with influent composite sampling unless otherwise stipulated. At least one sampling day in each seven shall reflect one day of weekend discharge, one day of peak loading, and any unusual discharge day.
- Grab samples of effluent shall be collected during periods of maximum peak flows and shall coincide with effluent composite sample days.
- Bioassay samples shall be collected on days coincident with effluent composite sampling. Total ammonia nitrogen shall be analyzed and un-ionized ammonia concentrations determined whenever fish bioassay test results fail to meet the toxicity limit.
- Report the toxicity concentration (tu) per sample and the number of samples per six months which exceed the maximum toxicity concentration.
- Grease and oil sampling shall consist of 3 grab samples taken at 8 hour intervals during the sampling day, with each grab being collected in a glass container and analyzed separately. Results shall be expressed as a weighted average of the three values, based upon the instantaneous flow rates at the time each grab sample was collected.
- If any effluent limit is exceeded, the sampling frequency shall be increased to daily until three samples collected on consecutive days are equal to or less than the effluent limit violated.
- When any type of bypass occurs, except for combined sewer overflow discharges, composite samples shall be collected for the duration of the bypass, on a daily basis, for all constituents at all discharge points which have effluent limits.
- Measuring effluent pH and temperature at the effluent junction structure during decant discharge episodes poses special difficulties. Effluent temperature may be measured year-round at the treatment plant sampling station. The discharger may propose an alternative method of measuring effluent pH (e.g., separately measuring plant effluent pH and CSO pH and calculating flow-weighted effluent pH). Any alternative method must be approved by EPA and the Regional Board.

III. SLUDGE MONITORING

Sludge monitoring is intended to:

- Assess the effectiveness of the pretreatment program.
- Maintain a record of the volume of solids generated and disposal sites used.
- Evaluate the character of sludge to ensure that appropriate disposal methods are employed.

A representative sample of residual solids from the treatment process shall be obtained twice a year (October and February). The sludge analyzed shall consist of a composite sample made up of 6 sub-samples ("grab samples") taken from the dewatering equipment, one-per-hour, during the 6 hour operating period.

The sludge monitoring program is as follows:

Parameter	Units	Type of Sample	Minimum Sampling & Analyzing Frequency
Quantity	Tons (or yd^3) & Disposal Location	Measured	During Removal
Moisture	%	Composite Sample (i.e., over time)	Twice a Year (October & February)
Total Kjeldahl Nitrogen	mg/kg dry wt	"	"
Ammonia (as N)	"	"	"
Nitrate (as N)	"	"	"
Total Phosphorus	"	"	"
pH	pH units	"	"
Grease & Oil	mg/kg dry wt	"	"
Arsenic	"	"	"
Boron	"	"	"
Cadmium	"	"	"
Copper	"	"	"
Chromium	"	"	"
Lead	"	"	"
Nickel	"	"	"
Mercury	"	"	"
Zinc	"	"	"
Selenium	"	"	"
Silver	"	"	"
Remaining "Priority Pollutants"	"	"	"
"Pesticides"	"	"	"

IV. RECEIVING WATER MONITORING

The objectives of receiving water monitoring are to partially satisfy the requirements of 40 CFR §125.62. These are that dischargers receiving a 301(h) modification shall:

- Document short and long-term effects of the discharge on receiving waters, sediments, biota, and beneficial uses of the receiving water; and

- Determine compliance with NPDES permit terms and conditions.

In addition, regulatory requirements of 40 CFR §125.61 require that water quality be maintained to assure protection of public water supplies, the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife, and to allow recreational activities.

Monitoring at the Southwest Ocean Outfall is also conducted to verify predictions in the Technical Review Report and Tentative Decision Document and to assess compliance with 301(h) permit limitations. Monitoring at the outfall must document water quality at the "Zone of Initial Dilution" (ZID) boundary, at reference stations, and at areas beyond the ZID where discharge impacts might reasonably be expected. Monitoring must reflect conditions during all critical environmental periods. All water quality samples should be collected and processed according to the protocols found in EPA's guidance document entitled Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods."

Shoreline, Nearshore, and Offshore Stations shall be located as in Appendix A (See Figure 2).

A. Shoreline Bacterial Sampling

Bacterial monitoring is conducted to assess bacteriological conditions and to determine compliance with the California Ocean Plan in areas used for body-contact sports (e.g., swimming) and where shellfish may be harvested for human consumption, and to assess aesthetic conditions for general recreational uses (e.g., picnicking, boating). Water contact recreational activities (swimming, sailing, windsurfing) extend from the San Francisco shoreline offshore for at least one mile.

Monitoring shall include observations of wind (direction and speed), weather (e.g., cloudy, sunny, rainy), sea state, direction of longshore currents (if possible) and tidal conditions (e.g., high, slack, or low tide). Observations of water discoloration, floating oil and grease, turbidity, odor, and materials of sewage origin in the water or on the beach shall be recorded. Surf samples shall be collected within the surf zone but as far seaward as possible.

Stations shall be occupied on different days in successive weeks, such that all days are routinely sampled and at least two (2) Saturdays and two (2) Sundays are sampled within each seven week period.

In the event of inclement weather, which may make sampling hazardous or impractical, collection of these shoreline samples may be omitted, upon approval of EPA Region 9 and the Regional Board, provided that such omissions do not occur in consecutive weeks or in more than four (4) weeks of any calendar year.

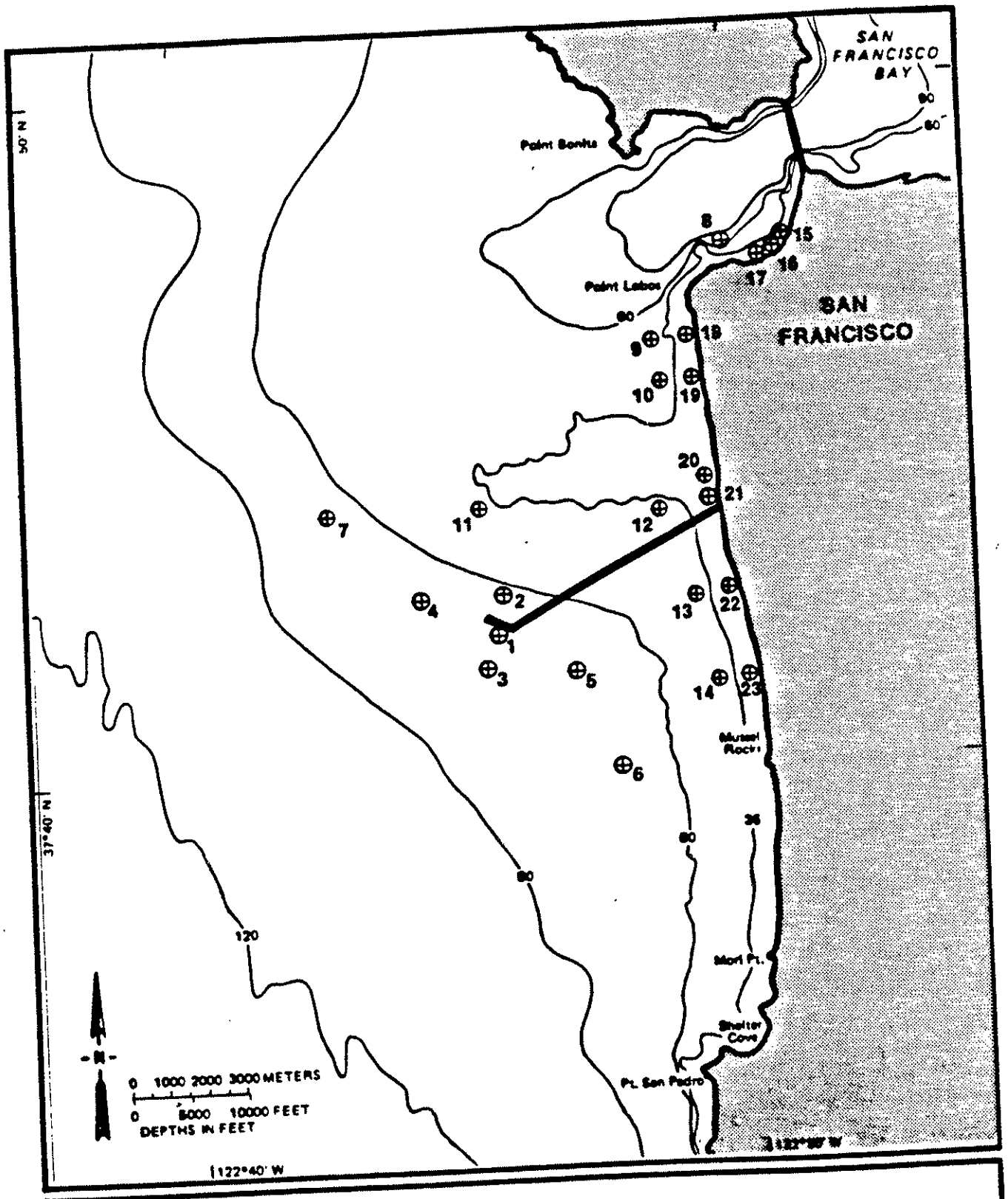


Figure 2. Locations of water quality sampling stations.

Shoreline bacterial monitoring requirements and frequencies are:

Parameter	Units	Sampling Station	Analyzing Frequency
Temperature	°C	WQ# 15-24	3 times/week
Total Coliforms	MPN/100 mL	WQ# 15-24	3 times/week
Fecal Coliforms	MPN/100 mL	WQ# 15-24	3 times/week
Enterococcus	CFU	WQ# 15-24	3 times/week

B. Water Column Sampling

Water column monitoring is conducted to determine compliance with the 1983 California Ocean Plan and to determine if the applicant's discharge causes significant impacts on water quality within the ZID and beyond the ZID as compared to reference stations.

Water samples shall be collected monthly at all stations (except the shoreline stations). The following observations shall be recorded during each sampling event:

- Wind (direction and velocity)
- Weather (e.g., cloudy, sunny, or rainy)
- Tidal conditions (i.e., high, low, or slack tide)
- Water color and/or discoloration
- Odor
- Occurrence of grease and oil and/or other materials of sewage origin

Offshore ocean samples shall be collected in an up-current direction as far from the sampling vessel as possible.

In the event of inclement weather, which may make sampling hazardous or impractical at any (or all) of the nearshore and offshore water quality stations, collection of these samples may be omitted, upon approval of EPA Region 9 and the Regional Board, provided that such omissions do not occur in consecutive months or in more than three (3) months of any calendar year.

The water column parameters to be measured are:

Parameter	Unit	Location
Temperature	°C	entire water column
Light Transmittance	extinction coefficient or % light transmittance	from surface
Dissolved oxygen	mg/L	entire water column

(continued)

Parameter	Unit	Location
pH	pH units	entire water column
Salinity	ppt	entire water column
Ammonia-N	mg/L	1 m, mid-depth and 1 m above bottom
Total and Fecal Coliform Bacteria	MPN/100 ml	1 m, mid-depth and 1 m above bottom
Enterococcus Bacteria	CFU	1 m, mid-depth and 1 m above bottom
Suspended Solids	mg/L	1 m, mid-depth and 1 m above bottom
Grease and Oil	mg/L	1 m, mid-depth and 1 m above bottom
Chlorophyll-a	ug/L	1 m, mid-depth and 1 m above bottom
Reactive Phosphate	ug/L	1 m, mid-depth and 1 m above bottom
Dissolved Sulfides (WQ# 1, 6, and 7 only)	mg/L	1 m above bottom
Secchi Disk Depths	m	from surface

C. Bacteriological and Ocean Current Studies

Under the EPA "Findings of Violation and Order for Compliance", described in Finding No. 6 under "Findings and Limitations" of this Order, the Discharger was required to conduct bacteriological and ocean current studies. Should these studies not be completed upon the issuance of this permit, they will continue as specified in the "Findings of Violation and Order for Compliance" (Docket No. IX-FY87-7), and become part of the requirements of this permit.

V. BENTHIC MONITORING

The benthic monitoring program is designed to meet the requirements for a biological monitoring program as specified in 40 CFR §125.62(b)(1)(i-iii). These requirements are:

- Periodic surveys of biological communities that are most likely affected by the discharge;

- Periodic determinations of the accumulation of toxic pollutants and pesticides in benthic macrofauna; and

- Sampling of sediments to support the water quality and biological surveys and to measure accumulation of toxic pollutants and pesticides.

The benthic monitoring program is also designed to evaluate compliance with Federal Water Quality Criteria and California Ocean Plan Standards. The benthic sediment and biological samples, should be collected and processed according to the protocols found in EPA s guidance document entitled Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods."

Note: All benthic samples shall be collected at all stations prior to trawl sampling for demersal fish and epibenthic macroinvertebrates.

A. Sediment Analyses

During February, June, and October of each year, a 0.1 m^2 Smith-McIntyre grab sampler shall be used to collect three (3) sediment grab samples at each of eleven (11) stations (Figure 3). In the event of inclement weather, which may make sampling hazardous or impractical at any (or all) of the eleven (11) benthic sediment stations, collection of these samples may be postponed (e.g., until the next month) upon approval of EPA Region 9 and the Regional Board.

The eleven (11) basic sediment chemistry stations shall be located as in Appendix A (See Figure 3).

Each benthic sediment grab sample shall be analyzed for the following:

- Sediment Grain Size Distribution (% weight in relation to phi size)
- Total Organic Carbon [mg/Kg (dry)]
- Total Volatile Solids [mg/Kg (dry)]
- Grease and Oil [mg/Kg (dry)]
- % Hydrocarbons [mg/Kg (dry)]
- Total Kjeldahl Nitrogen [mg/Kg (dry)]
- BOD_5 at 20° [mg/Kg (dry)]
- Dissolved sulfides [mg/Kg (dry)]

Annually (October), three (3) benthic sediment samples, collected with a 0.1 m^2 Smith-McIntyre grab sampler, shall be collected at stations 1, 6, 7, and 25. In the event of inclement weather, which may make sampling hazardous or impractical at any (or all) of the above benthic sediment stations, collection of the samples may be postponed (e.g., until the next month) upon the approval of EPA Region 9 and the Regional Board. At each station, the top two (2) cm of each grab shall be combined to form one (1) composite sample which is then measured for all 126 priority pollutants (except asbestos), 301(h) pesticides and saturated (F1) and unsaturated (F2) petroleum and biogenic hydrocarbons. After the first year's data

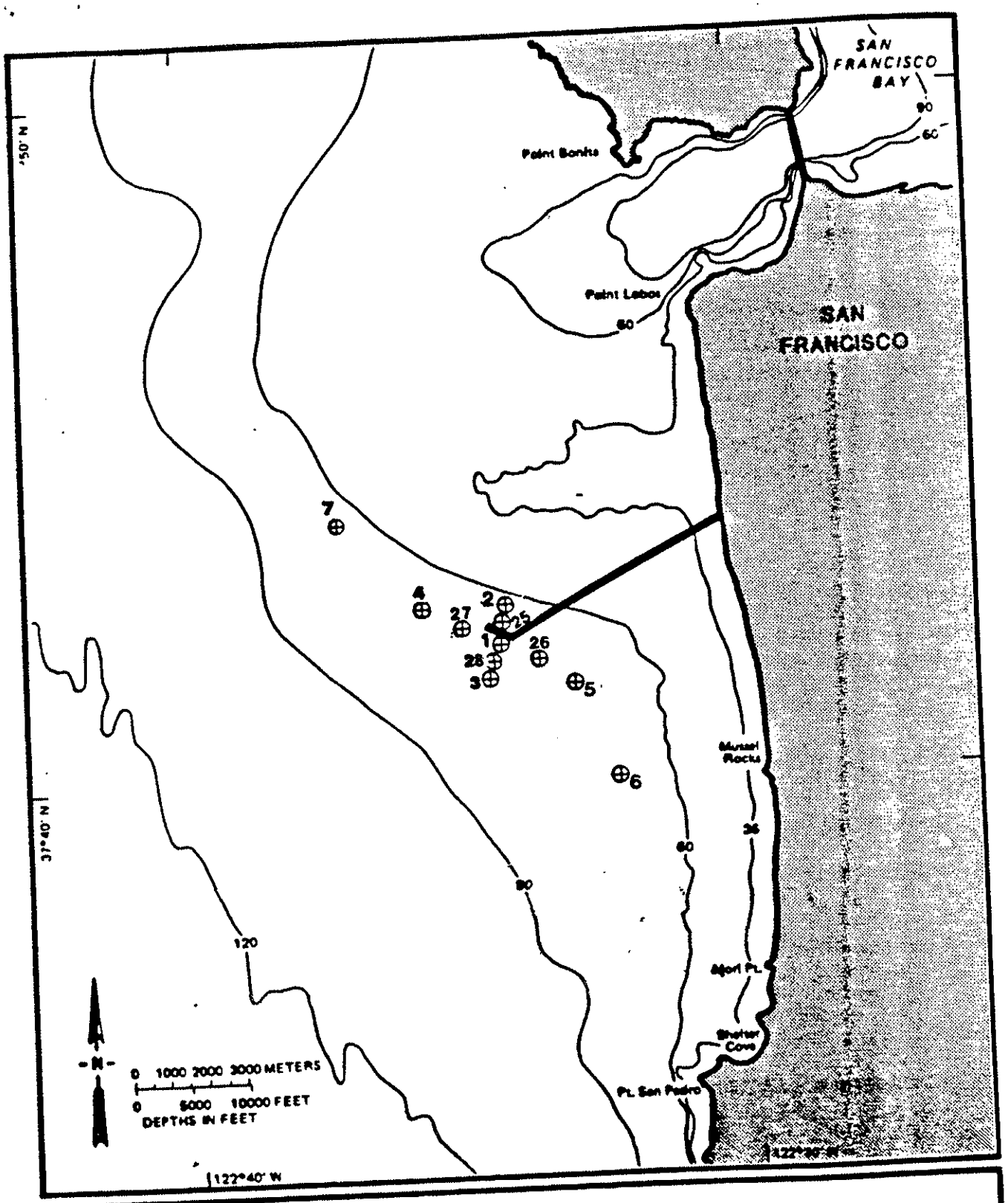


Figure 3. Locations of sediment sampling stations.

are analyzed by the permittee, EPA Region 9 and the Regional Board, the number of stations to be sampled, the number of grabs per replicate, and the number of "priority pollutants" and 301(h) pesticides to be analyzed may be changed (i.e., increased or decreased) in order to provide more meaningful data during the term of this permit. The analytical protocols found in EPA's guidance document entitled Analytical Methods for U.S. EPA Priority Pollutants and 301(h) Pesticides in Estuarine and Marine Sediments[12] should be used to measure priority pollutants in the sediment samples.

B. Infauna Analyses

During February, June, and October of each year, a 0.1 m^2 Smith-McIntyre benthic grab sampler shall be used to collect five (5) sediment samples at each of eight (8) stations (Figure 4) located in the vicinity of the outfall. In the event of inclement weather, which may make sampling hazardous or impractical at any (or all) of the eight (8) benthic infauna stations, collection of these samples may be postponed (e.g., until the next month) upon approval of EPA Region 9 and the Regional Board. An alternate sediment collection device, or a different replication scheme, may be approved by EPA Region 9 provided that the alternate device and replication scheme are statistically equivalent or superior to the results obtained by analyzing five (5) replicate samples obtained with a 0.1 m^2 Smith-McIntyre grab sampler. The eight (8) benthic infauna stations shall be located as in Appendix A (See Figure 4.)

All sediment samples collected for the analysis of benthic infauna shall be screened through a 0.5 mm (0.02 inch) mesh sieve. During February, June and October of each year, two (2) replicate sediment samples, at the ZID boundary stations (i.e., stations 1 and 25 in Fig. 4) and the reference stations (i.e., stations 6 and 8), shall be screened through 1.0 mm (0.04 inch) and 0.5 mm (0.02 inch) mesh sieves to determine benthic larval recruitment. All organisms collected from the sieved samples should be fixed in 10% buffered formalin and transferred within two to seven days to 70% ethanol for storage before processing. To facilitate sorting, organisms may be stained with Rose Bengal. The following data and statistical analyses shall be reported for each replicate and station:

(a) Identification of all infauna to the lowest possible taxon (usually species);

(b) Total biomass of the following taxonomic groups:

1) Molluscs
2) Echinoderms
3) Polychaetes
4) Crustaceans
5) All other macroinvertebrates;

(c) The biological indices found in the EPA document entitled Recommended Biological Indices for 301(h) Monitoring Programs[13];

(d) When appropriate, the mean, median, range, standard deviation, and 95% confidence limits for the data specified in (b) and (c) above;

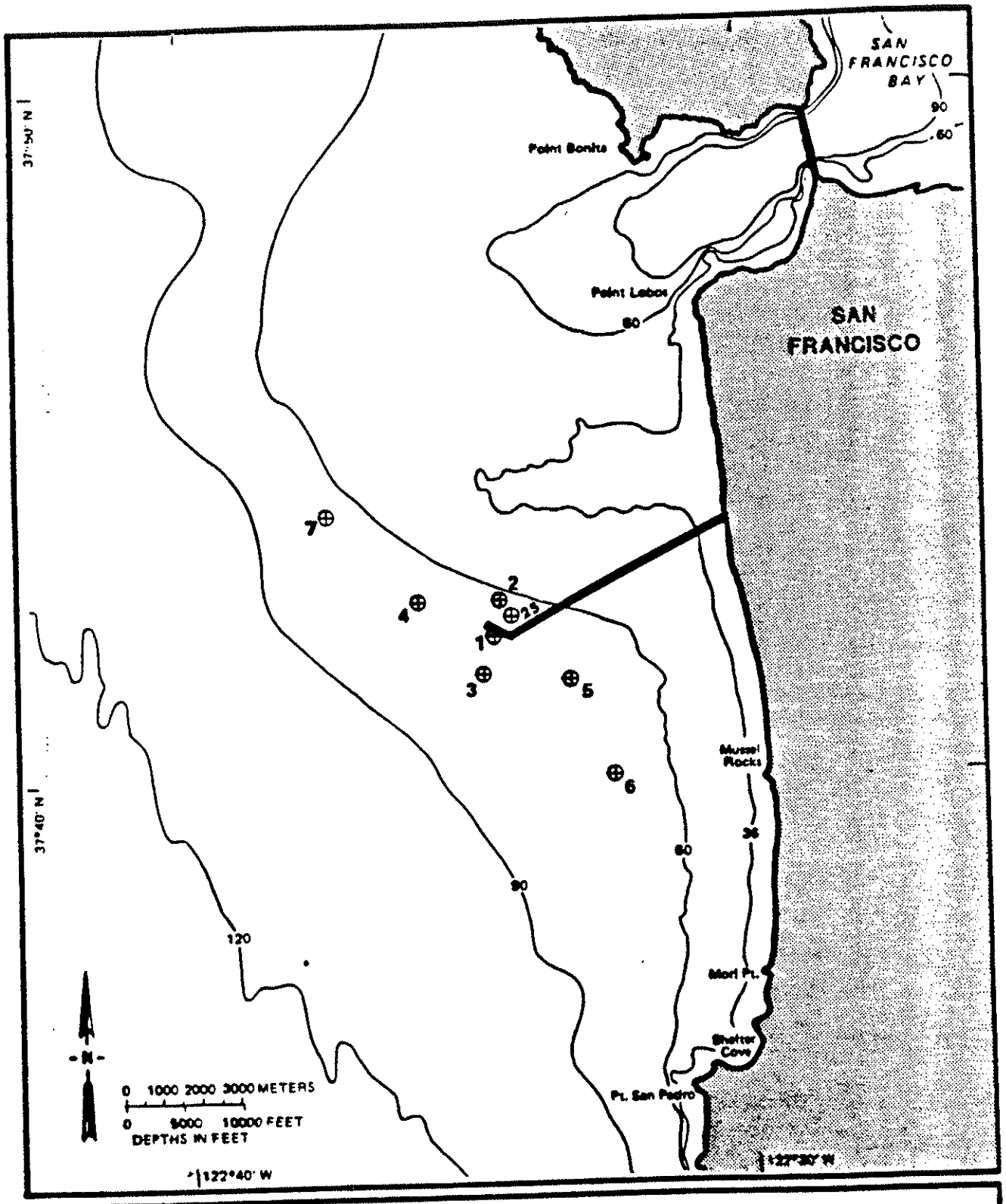


Figure 4. Locations of benthic infauna sampling stations.

(e) Statistical analyses shall be conducted and graphic displays shall be presented in the monitoring reports to demonstrate the current status of and any changes to the benthic infauna communities found at the ZID boundary, gradient, and reference stations.

VI. DEMERSAL FISH AND EPIBENTHIC MACROINVERTEBRATE MONITORING

Monitoring shall be conducted to assess the balanced indigenous populations of demersal fish and epibenthic macroinvertebrates, to assess the accumulation of priority pollutants and petroleum hydrocarbons in selected organisms, and to determine if statistically significant differences exist between populations sampled at the ZID boundary, gradient, and reference stations.

Duplicate standardized otter trawls shall be conducted during the day at each of seven (7) stations (Figure 5) during the months of February, June, and October of each year. In the event of inclement weather, which may make sampling hazardous or impractical at any (or all) of the seven (7) trawl stations, collection of these samples may be postponed (e.g., until the next month) upon approval of EPA Region 9 and the Regional Board.

The seven trawl stations shall be located as in Appendix A (See Figure 5).

All trawls shall be conducted according to the guidelines in EPA's guidance document entitled Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods[11]. A standardized trawl shall be a Marinovich 7.6 m (25 ft) head rope otter trawl, towed at the specified depth for a minimum duration of 10 minutes and at a uniform speed between 2.0 and 2.5 knots. All necessary steps should be taken to ensure that the second trawl at each station covers the same distance (and area) but does not sweep the same area as the first trawl. EPA Region 9 may approve an alternate trawling net, upon satisfactory demonstration that the substitute net is equivalent or superior in performance to the standard Marinovich otter trawl.

A. Community Analyses

Fish and macroinvertebrates collected by each trawl shall be measured (e.g., standard length) and identified to the species level. In addition, the following data and statistical analyses shall be reported separately for fish and macroinvertebrates:

(a) The biological indices found in the EPA document entitled Recommended Biological Indices for 301(h) Monitoring Programs[13];

(b) All organisms shall be inspected for external abnormalities (e.g., tumors, ectoparasites) and disease symptoms (e.g., fin erosion, external lesions). The frequency of abnormalities and incidence of disease shall be compared between the ZID boundary and the reference stations (i.e., stations 6 and 7), and spatial and temporal trends shall be measured and reported;

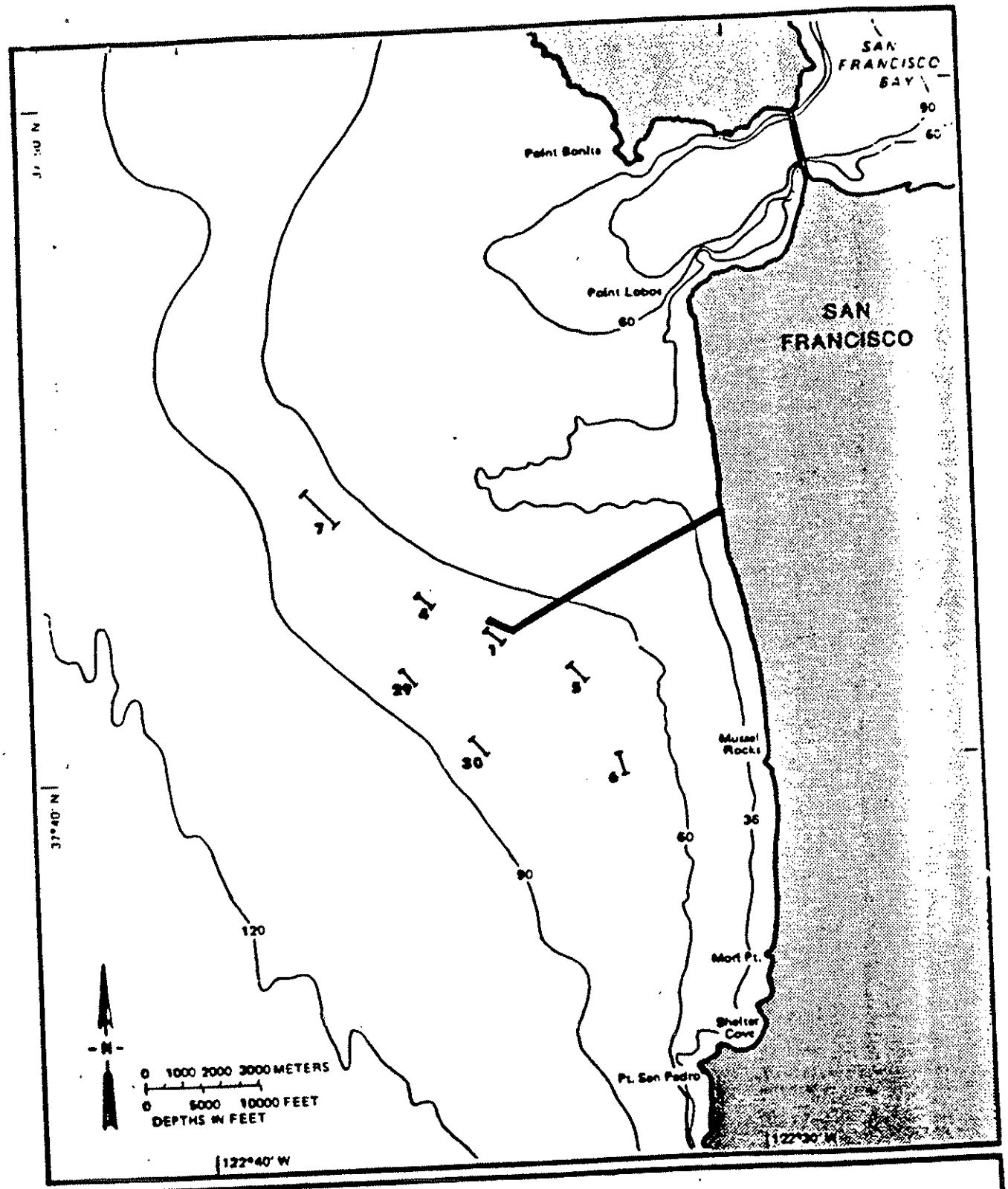


Figure 5. Locations of demersal fish and macroinvertebrate trawl stations.

(c) Station mean, range, standard deviation, and 95% confidence limits, if appropriate, for values determined above in (a) and (b); and

(d) Statistical analyses shall be conducted and graphic displays shall be presented in the monitoring reports to demonstrate the current status of and any changes to the demersal fish and macroinvertebrate

B. Bioaccumulation Monitoring

At trawl stations 1 and 6 at least one (1) demersal fish species and one (1) epibenthic macroinvertebrate shall be analyzed annually (October) for all 126 priority pollutants (except asbestos). In the event of inclement weather, which may make sampling hazardous or impractical at one or both or the two (2) trawl stations, collection of these samples may be postponed (e.g., until the next month) upon approval of EPA Region 9 and the Regional Board.

The following fish species are recommended, in decreasing order of preference, for analysis when available:

- English sole (Parophrys vetulus)
- Speckled sanddab (Citharichthys stigmaeus)
- Staghorn sculpin (Leptocottus armatus)
- White croaker (Genyonemus lineatus)
- Pacific tomcod (Microgadus proximus)

The following macroinvertebrate species are recommended in decreasing order of preference for analysis when available:

- Dungeness crab (Cancer magister)
- Slender crab (Cancer gracilis)
- Black-spot-shrimp (Crangon nigromaculata)
- Short-spined starfish (Pisaster brevispinus)

Note: Baited traps may be used to collect sufficient numbers of macroinvertebrates if insufficient numbers of animals are collected by trawling.

If possible, the same species of fish and macroinvertebrate shall be sampled at all stations and analyzed. To the extent possible, individual fish and macroinvertebrates selected to be analyzed should be of the same size and sex. Duplicate otter trawls should be combined to form a single collection per station from which individual organisms are selected for chemical analyses.

"Priority pollutant" (excluding asbestos) and 301(h) pesticide analyses shall be conducted on at least three (3) composite muscle samples and three (3) composite liver samples from fish obtained in each station's catch. These composite samples are to be obtained by compositing tissues from ten (10) individuals per composite, whenever feasible. Macroinvertebrate tissues to be analyzed for priority pollutants shall consist of three (3) composite muscle samples and three (3), composite hepatopancreas samples collected from animals in each station's catch. Each of the macroinvertebrate composite samples shall consist of ten (10) individuals, whenever feasible.

Note: To take into account the temporal and spatial variability of the trawl catches, alternate species and/or alternate numbers of animals per composite sample may be allowed at one or more trawl stations if approved by EPA Region 9 and the Regional Board. In addition, after the first two (2) years of bioaccumulation data are analyzed by the permittee, EPA Region 9, and the Regional Board, the number of trawl stations, the number of "composite" samples per station, and the number of "priority pollutants" and 301(h) "pesticides" to be analyzed may be changed (i.e., increased or decreased) or order to provide more meaningful data during the term of the permit.

The analytical protocols found in EPA's guidance document entitled Bioaccummulation Monitoring Guidance: 4. Analytical Methods for U.S. EPA Priority Pollutants and 301(h) Pesticides in Tissues from Estuarine and Marine Organisms[14] should be used to measure priority pollutants in the tissue samples.

VII. MUSSEL MONITORING

In order to determine if the effluent leaving the Southwest Ocean Outfall may adversely impact the nearshore and shoreline biota, mussels (Mytilus californianus) shall be collected annually (October) and measured for priority pollutants and hydrocarbons. Mussels shall be collected from the following two (2) stations:

Mussel Collection Station	Location: Latitude	Longtitude
Point Lobos	37°46.81'	122°30.82'
Mussel Rocks	37°40.02'	122°29.87'
Point San Pedro	37°35.58'	122°31.24'

At each station, three (3) composite samples, consisting of fifteen (15) whole mussels (excluding the shells) per sample, shall be measured for all 126 priority pollutants (excluding asbestos) and saturated (FI) and unsaturated (F2) petroleum and biogenic hydrocarbons. The analytical protocols found in EPA's guidance document entitled Bioaccumulation Monitoring Guidance: 4. Analytical Methods for U.S. EPA Priority Pollutants and 301(hl) Pesticides in Tissues from Estuarine and Marine Organisms[14] should be used to measure priority pollutants in the mussel tissue samples.

VIII. OUTFALL AND DIFFUSER MONITORING

An annual survey shall be conducted in the same month each year (month to be specified by the Discharger) and should be in a month with good underwater visibility. This survey shall consist of an examination of the outfall and diffuser port system for leaks and flow distribution, and for determination of possible external blockage of ports by sand and silt deposition.

IX. REPORTING SCHEDULE

Monitoring reports shall conform to the content and schedule requirements of Section E, 'General Reporting Requirements' contained in 'Standard Provisions and Reporting Requirements'.

FOOTNOTES

1. Jones D.A. Personal communication (letter to Ms. Nancy Edmiston, U.S. Environmental Protection Agency, Region 9, San Francisco, CA) City and County of San Francisco.

2. Based on Ocean Plan criteria using a minimum initial dilution of 58:1. If actual dilution is found to be less than this value, these limits will be recalculated and the order revised.

3. The hexavalent chromium limit may be met as a total chromium limit.

4. The monthly requirement for influent flow data for chromium may be deleted by EPA and the Regional Board once a predictable relationship between influent and effluent flow rates is firmly established.

5. The discharger may at its option monitor for total chromium. If the measured total chromium concentration exceeds the hexavalent chromium limitation, it will be assumed that the hexavalent chromium limitation was exceeded, unless the results of a hexavalent chromium analysis of a replicate sample indicate otherwise. When analyzing for hexavalent chromium, the appropriate sampling and analytical method must be used (i.e., periodic grab sample fixed with nitric acid and then composited).

6. Remaining "Priority Pollutants" include asbestos. Recognizing the large expense of asbestos analysis, EPA and the Regional Board will annually review the need for this data and may reduce or eliminate asbestos monitoring.

7. Monthly monitoring may be reduced if chromium levels are shown to be significantly low.

8. Samples must be collected in thoroughly cleaned containers. Containers should be completely filled with effluent before capping. Sample degradation by biological action can be minimized by storing samples at 4°C. Tests should begin as soon as possible after collecting the sample but in no case longer than 24 hours. Where samples are known to contain volatiles that may be toxic, or where samples may undergo rapid changes, bioassay tests must be conducted within four (4) hours after the samples are collected.

   Note that 24 hours is the total maximum time allowed from sample collection to the start of the test including all transit time and is allowed only for refrigerated samples.

9. By methods specified in Guidelines for Performing Static Acute Toxicity Fish Bioassays in Municipal and Industrial Wastewater, July 1976 (California State Water Resources Control Board and Department of Fish and Game) and/or Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, March 1985 (EPA 600/4-85-013), except where inconsistent with established flow-through testing procedure. Submission of bioassay results should include the information on pages 30 through 34 of the "Guidelines" where appropriate. Bioassays shall be performed using two (2) fish species in parallel tests: one species shall be the three-spine stickleback (Gasterosteus aculeatus) and the other shall be the fathead minnow (Pimephales promelas). In adddition, EPA Region 9 and/or the Regional Board may specify test methods which are more sensitive than those specified above.

10. Short-term chronic toxicity tests shall be conducted using the most sensitive of at least three (3) tested species. Initially, compliance will be based upon toxicity testing using daphnia (Ceriodaphnia dubia). A protocol for the test with Ceriodaphnia is available (see "Short-term Methods for Estimating the Toxicity of Effluents and Receiving Waters for Freshwater Organisms", EPA 600/4-85-0014).

    EPA Region 9 and the State Water Resources Control Board are developing chronic toxicity tests using marine species found along the California coast. Once an appropriate protocol is developed, the permittee shall, within three (3) months, initiate use of this species for compliance testing. When at least three appropriate short-term chronic testing protocols are available, comparison testing shall be required of the permittee to determine which species is most sensitive. If appropriate, the "most sensitive tested species" shall then be used for compliance testing.

11. U.S. EPA (1987). Quality Assurance and Quality Control (QA/QC) for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency (EPA). EPA 430/9-86-004, 267 pp.

12. Tetra Tech, Inc. (1986). Analytical Methods for U.S. EPA Priority Pollutants and 301(h) Pesticides in Estuarine and Marine Sediments. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract Co. 68-01-6938. Tetra Tech, Inc., Bellevue, WA. 113 pp.

13. U.S. EPA. 1987. Recommended Biological Indices for 301(h) Monitoring Programs. Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency (EPA). EPA 430/9-86-002, 17 pp.

14. Tetra Tech, Inc. 1986. Bioaccumulation Monitoring Guidance: 4. Analytical Methods for U.S. EPA Priority Pollutants and 301(h) Pesticides in Tissues from Estuarine and Marine Organisms. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-6938. Tetra Tech, Inc., Bellevue, WA. 111 pp.

15. Concentration limits shall also be transcribed into mass emission rate limits on accordance with the general formula: lbs/day = 8.34 x Ce x Q. The 6-month median limit on daily mass emissions shall be determined using the six-month median effluent concentration limit as Ce and the observed flow rate Q in millions of gallons per day (MGD). The daily maximum mass emission rate limit shall be determined using the daily maximum effluent concentration limit as Ce and the observed flow rate Q in MGD.

16. Weekly average and maximum-at-any-time limitations for BOD_5 and total suspended solids shall be limited to dry-weather discharges.

Appendix A

OCEAN MONITORING STATION

WATER QUALITY	SEDIMENT	BENTHIC	FISHERY	LATITUDE	LONGITUDE	DEPTH	CALIF. ZONE III Y	COORD. III X	LOCATION
WQ01	SS01	BS01	FS01	37° 42.21'	122° 34.52'	79'	444,875	1,399,625	
WQ02	SS02	BS02		37° 42.63'	122° 34.50'	66'	447,398	1,399,794	
WQ03	SS03	BS03		37° 41.66'	122° 34.60'	89'	441,524	1,399,181	
WQ04	SS04	BS04	FS04	37° 42.70'	122° 35.70'	75'	447,952	1,394,019	
WQ05	SS05	BS05	FS05	37° 41.50'	122° 33.12'	79'	440,396	1,406,295	
WQ06	SS06	BS06	FS06	37° 40.00'	122° 32.25'	79'	431,203	1,410,292	
WQ07	SS07	BS07	FS07	37° 43.47'	122° 37.18'	75'	452,750	1,387,000	
WQ08				37° 48.07'	122° 29.75'		479,905	1,423,393	Located between the G.G. Bridge & Mile Rock, off Baker Beach.
WQ09				37° 46.35'	122° 31.30'		469,630	1,415,706	Located at 40'contour off Ocean Beach, near Seal Rocks
WQ10				37° 45.83'	122° 31.22'	40'	466,467	1,416,023	Located at 40' off Ocean Be., off So. G.G. Park Windmill
WQ11				37° 44.23'	122° 34.85'	40'	457,143	1,398,322	Located at 40' contour on the San Francisco Bar.
WQ12				37° 44.13'	122° 31.13'	38'	456,143	1,416,234	Located at 40' off the Westside Pump Station.
WQ13				37° 42.55'	122° 30.92'	40'	446,536	1,417,039	Located at 40' contour off San Mateo Co. overflow struct
WQ14				37° 41.27'	122° 30.60'	40'	448,737	1,418,415	Located at 40' contour off San Mateo Co. beach
WQ15				37° 47.47'	122° 28.87'	Surf			
WQ16				37° 47.38'	122° 29.05'	Surf			
WQ17				37° 47.38'	122° 29.37'	Surf			
WQ18				37° 46.35'	122° 30.63'	Surf			
WQ19				37° 45.83'	122° 30.57'	Surf			
WQ20				37° 44.23'	122° 30.43'	Surf			
WQ21				37° 44.23'	122° 30.40'	Surf			
WQ22				37° 42.55'	122° 30.10'	Surf			
WQ23				37° 41.18'	122° 29.55'	Surf			
WQ24				37° 40.05'	122° 29.50'	Surf			
	SS25	BS25		37° 42.23'	122° 34.50'		445,000	1,397,543	Located 24 meters no. of the mid-point of oper. diffuser
	SS26			37° 41.92'	122° 33.90'	75'	443,027	1,402,591	
	SS27			37° 42.38'	122° 34.96'	80'	442,931	1,397,543	
	SS28			37° 41.90'	122° 34.48'	75	442,967	1,399,792	
			FS29	37° 41.56'	122° 35.80'	90'	441,046	1,393,382	
			FS30	37° 40.54	122° 34.61'	85'	434,750	1,399,000	